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Scholastic's Magazine for Today's Elementary Classrooms

R. Howell

TEACHING and computers

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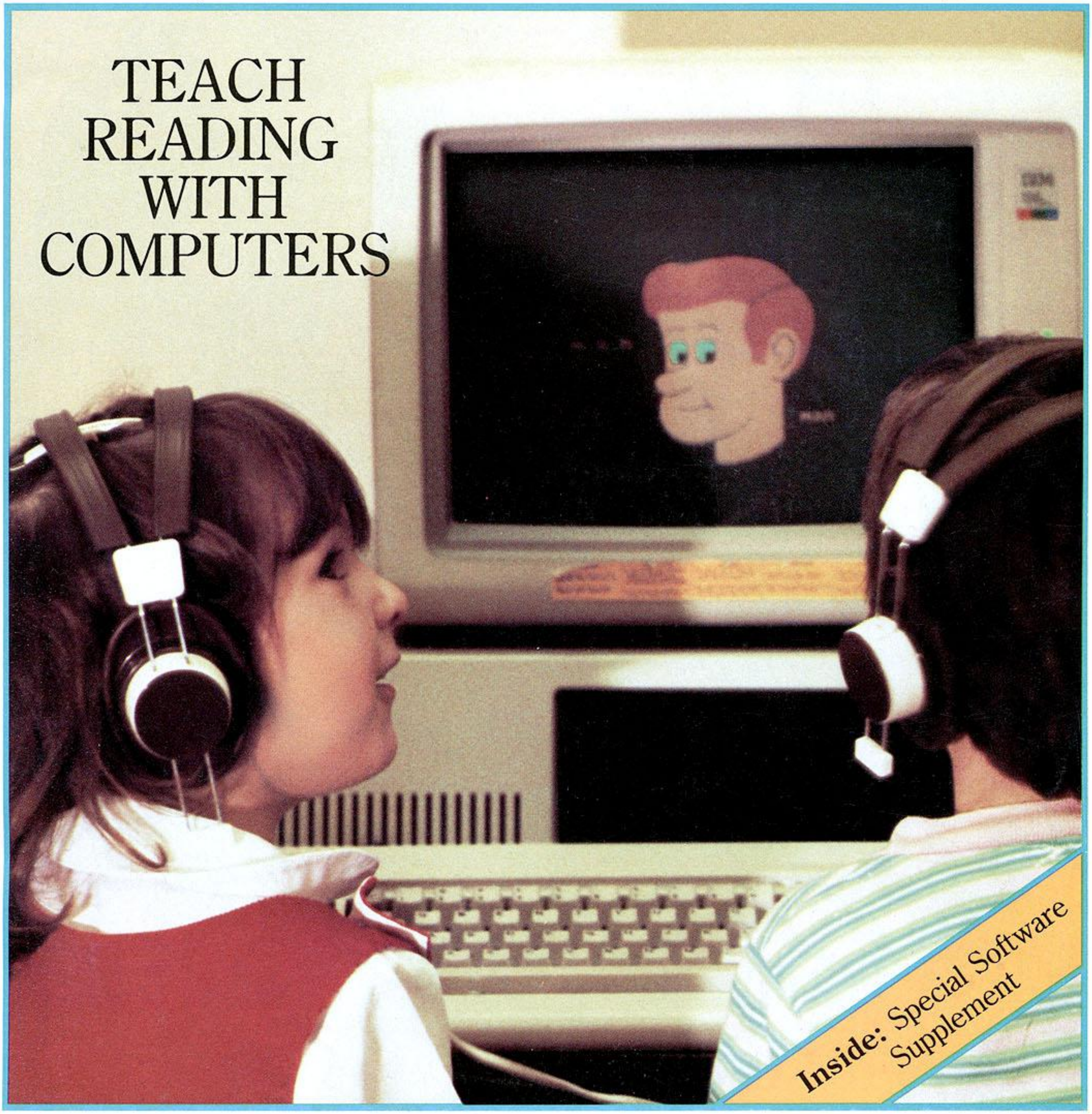

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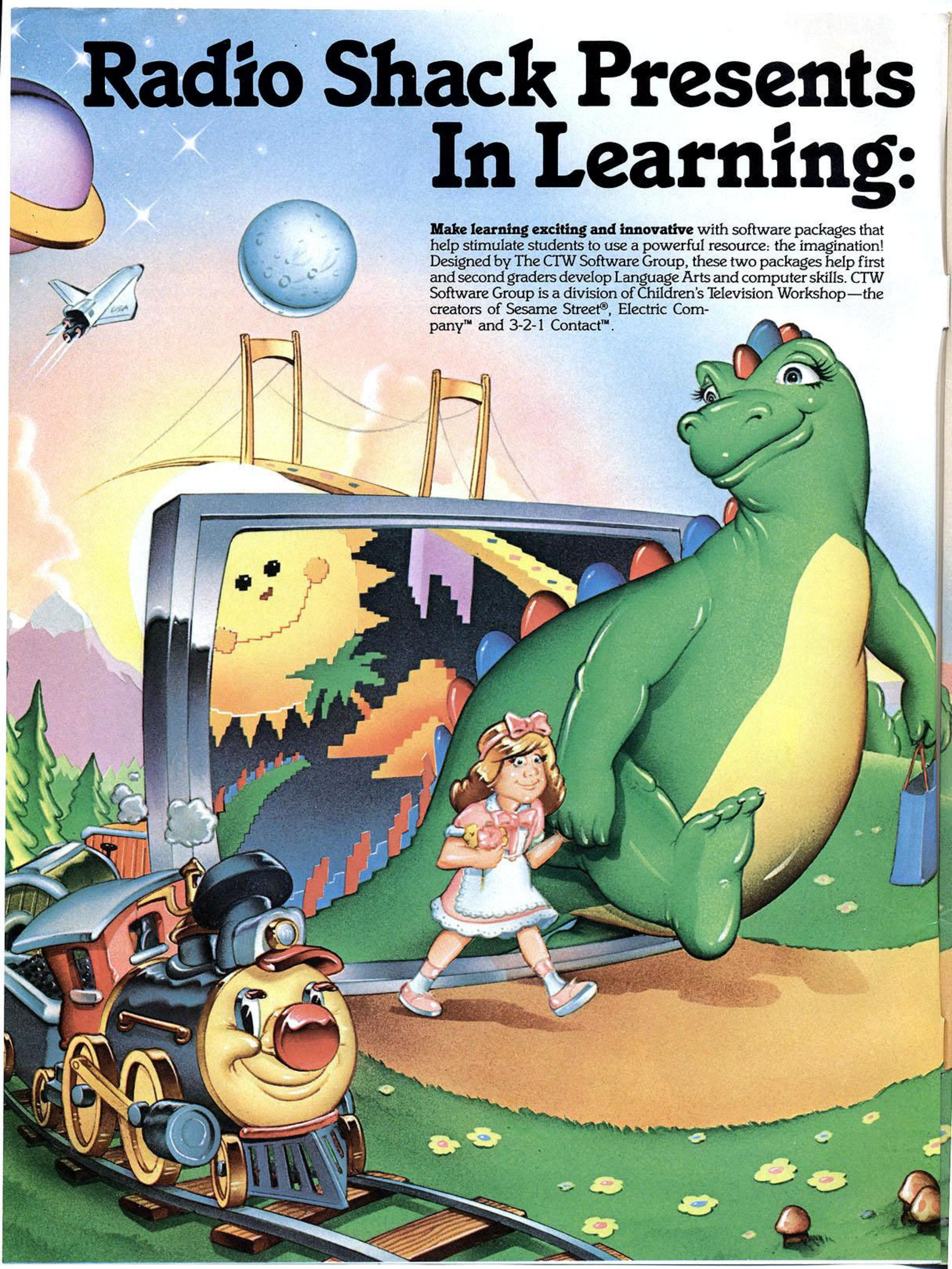

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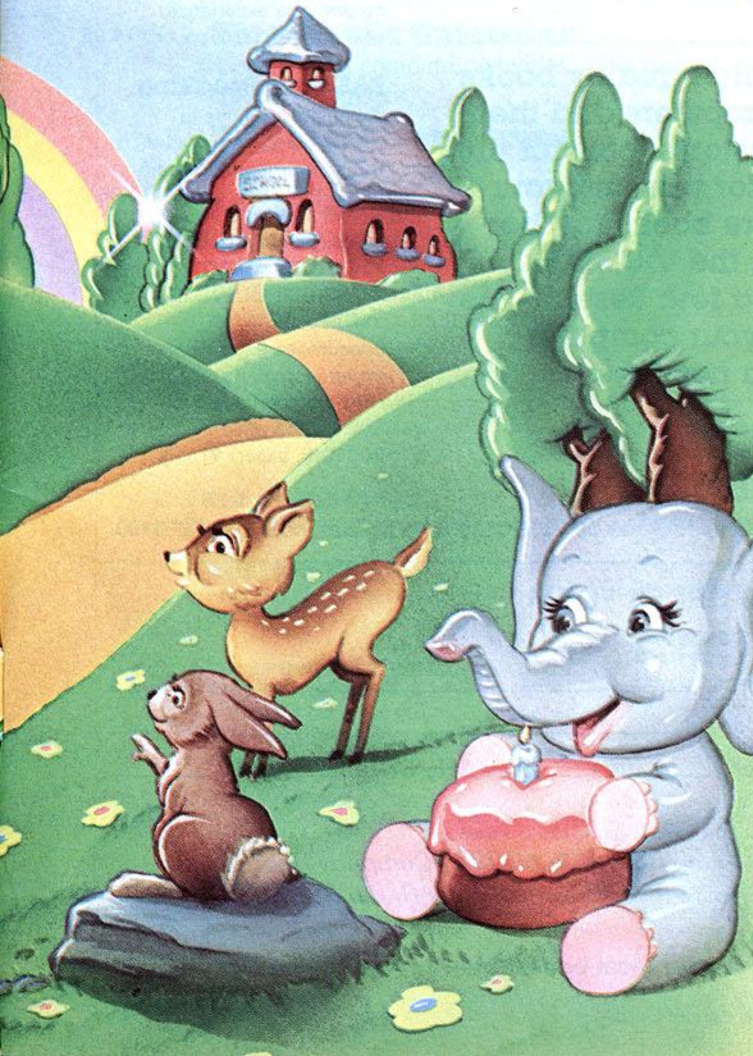

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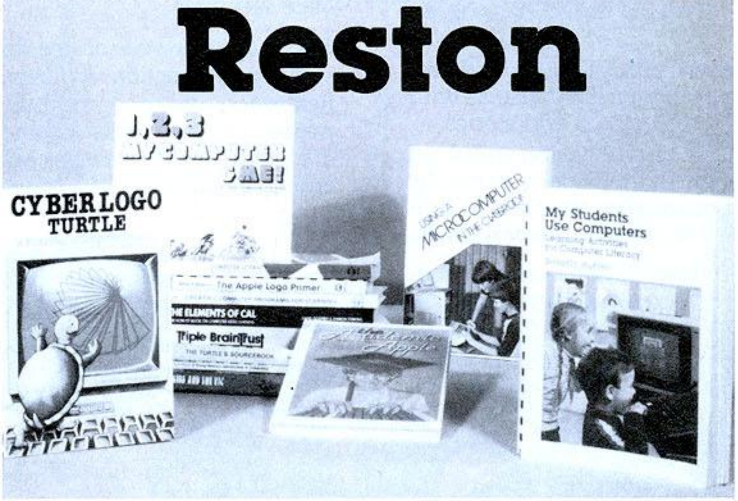

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May/June 1984 Vol. 1, Issue 8

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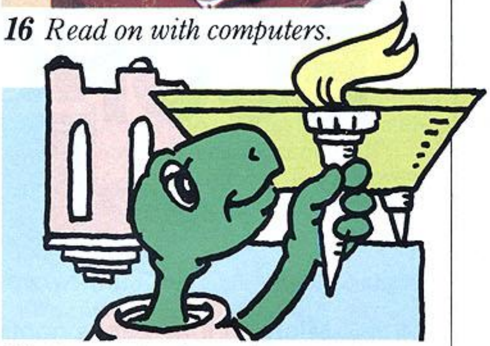

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Cover Photograph by Elizabeth Glasgow

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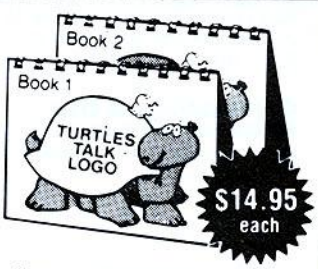

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FROM THE EDITOR

Sorting Through Software

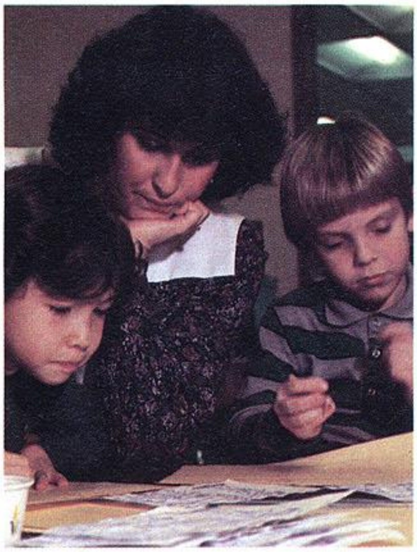
Teachers don't have time to review hundreds of educational software programs personally. But how else can they be sure they're purchasing the very best?

For starters, they can turn to **A+ Software**, page 29. In this special supplement, a panel of highly respected computer-using teachers supply information on software they have used with students and have found to be top-notch. One section in the supplement also tells what kinds of educational software are being produced and what to look for in selecting good programs.

Tear out the supplement and file it for handy reference.

If one of the software programs you own is Logo, have we got a treat for you! It's called **Logo Olympics**, page 20. This gold-medal feature is an exciting take-off on the Summer Olympics. Like the real thing, it consists of athletic events; but they've been adapted a little so that the Logo turtle, with the help of an eager student, can perform them. There's a grueling Maraturtlethon, a couple of Turtle Hurdle races, a challenging Penturtlethon, and more! These events not only develop your students' Logo skills; they also provide good math and language arts practice.

Kindergartners Rachel and Brandon from Cary, North Carolina, show assistant editor Lesli Rotenberg how to use the Writing to Read program.



In **Booting Up for Reading**, page 16, assistant editor Lesli Rotenberg takes a look at two widespread reading programs that use computers: the Writing to Read program and the Individual Reading Instruction System (IRIS).

That's Lesli in the photograph below, receiving a lesson in Writing to Read from kindergartners Rachel and Brandon at Briarcliff School in Cary, North Carolina. "Writing to Read and IRIS approach reading instruction in two very different ways," Lesli says. "But both programs seem to generate tremendous enthusiasm from participants."

Great news! *Teaching and Computers'* pull-out poster is now double its original size! The monthly electronic calendar will still appear on one side of the poster, and a colorful, instructional visual on the other; but from now on, it will be large enough for students to view from every cubbyhole in your classroom.

Don't miss this month's visual on computer careers. (See **T&C's Poster Series**, page 33.) Who knows! You may have a future systems analyst, computer technician, or disk driver (what's that?) in your very room.

Columnist Molly Watt makes a good suggestion in this month's **Question Corner**, page 12. "Borrow a school computer to take home with you during the summer," she says. "That way you can dabble with it for a few months and come up with lots of ideas for next year."

Enjoy your summer!

Mary Dalheim
Editor

MEET *TEACHING AND COMPUTERS'* TEACHER ADVISORY BOARD

The following computer-using teachers are very important to *Teaching and Computers*. They are the classroom experts who provide *T&C* editors and artists with feedback and article ideas each month.

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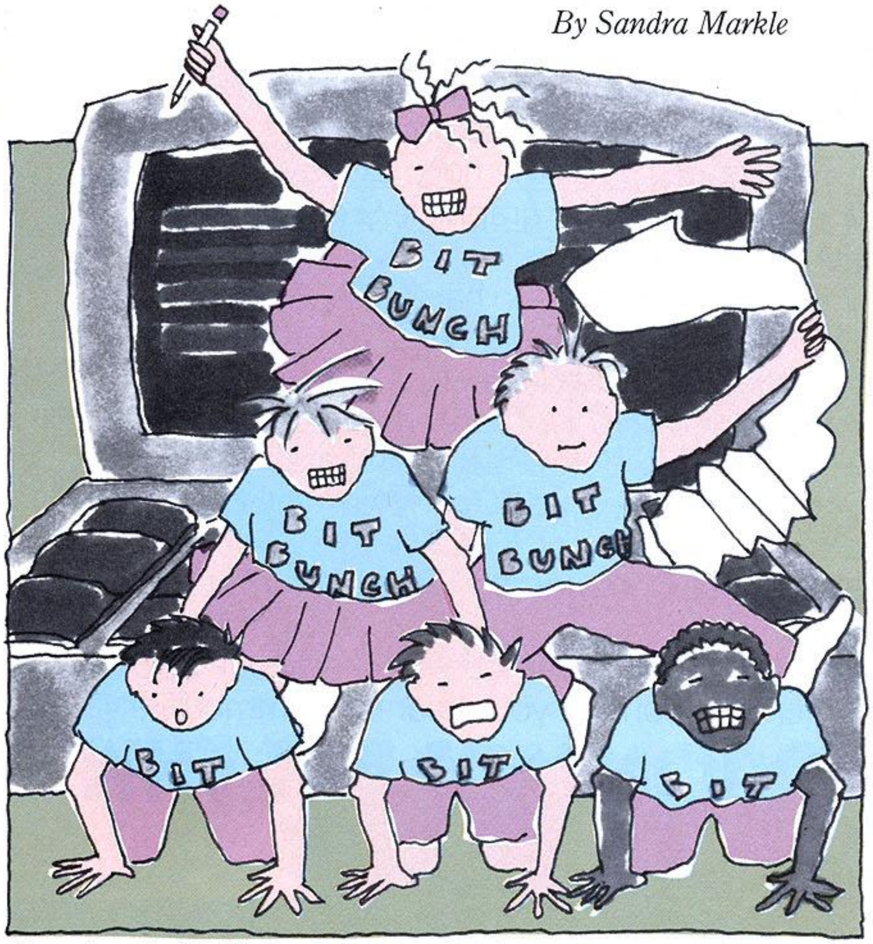
IDEA OF THE MONTH

Start a Computer Club

By Sandra Markle



Start a branch of the Bit Bunch Computer Club in your school.

Mindy Ball

Are your kids so excited about computers that they hardly talk about anything else? Or are they a little turned off by the push for computer literacy? Either way, a Bit Bunch Computer Club is a super opportunity to take a fresh look at this technology. In a Bit Bunch Club, kids can share ideas, work together, and most of all have fun with computers.

Starting a Bit Bunch branch at your school is simple. First, make it clear that members don't have to be experts to join; welcome beginners.

Once you've assembled an interested group, plan activities and events to keep members interested. The best way to do this is to let the kids decide the direction and purpose of the club. But if children are a little shy and apprehensive during the first few meetings, try these activities to break the ice:

Evaluate Software

One activity that is fun and useful is to review the school's software. Develop a checklist of points to evaluate in each software package, such as the quality of the graphics, the ease of use, and the helpfulness of the documentation. Have students write the information on index cards. The index cards should also include a place for the package's name, manufacturer, cost, and purpose. Have members file the index cards in a recipe box.

After kids have evaluated most of the school's software, plan a field trip to a local software dealer to evaluate other packages. Once again, have students write their evaluations on index cards. If you arrange a visit at a time that isn't busy, and make it clear that the club is earning money to buy software in the future, your visit will be more enthusiastically welcomed.

Administrative Activities

Now, how does the club raise funds to buy software? This is an important activity because software is not cheap. The club can raise money through traditional ways, such as bake sales and dog washes, but it can try computerized methods, too. Have kids make cards by printing out computer designs and gluing them to construction paper. Kids can sell these computerized cards for Christmas, Valentine's Day, Mother's Day and other occasions throughout the year.

Another important administrative activity is promoting an image. If the name Bit Bunch just doesn't fit the character of the club, conduct a contest to rename the club. Using their knowledge of computer terms, have all members submit at least one suggestion — Data Devils, Compu-Kids, and so on. Vote for the best.

Computers at Work

To prepare kids for the impact computers will have on their adult lives, have them visit workers on the job, as they use computers. Arrange to visit a worker who uses computers a great deal, such as a computer programmer. On another trip, visit someone who uses the computer as one of many tools to get a job done, such as a travel agent.

Invite parents and other community members who use computers in their work to speak at club meetings.

Service Projects

Have club members design and write a program for the school to use. Depending on the kids' expertise, the program could be as simple as a drill and practice for the early elementary grades, or as sophisticated as a course scheduling system for the district.

Members who are not proficient in programming but who still want to promote computer awareness can assemble a computer literacy center on wheels. Start with a library cart and have members add a microcomputer, an instruction poster for loading and starting the computer, task cards for hands-on computer activities, and discovery cards on the history of computers. Schedule times with teachers when members can wheel the mobile center into classrooms to give demonstrations on how to use it.

Computer Creativity

If club members enjoy computer graphics, have them create a graphic scene together. Select a scene to create, like a country farmhouse, and have each member take turns at the computer designing a segment of the picture. One artist can create the trees, another the farmhouse, and the third the farm animals.

Take a color slide of the scene, have it printed and enlarged, and frame it. Hang the picture on the wall where the club meets.

Sometimes computer images appear faded in photographs, because the flash drowns out the pixels on the screen. The Kodak Company has a free brochure on how to take picture-perfect photographs of TV and computer screen images. Send a self-addressed, stamped, legal-size envelope to Kodak, Dept. 412-L, Rochester, NY 14650. Ask for brochure #AC-10.

Have members investigate how computer-generated graphics and special effects are made in movies such as the *Star Wars* trilogy and *Tron*. For the project's grand finale, go to one of these movies. Because club members have an insider's appreciation of the energy and time that was spent creating the special effects, don't be surprised if everyone stays for the credits and applauds the computer artist. ■

Sandra Markle is the author of several computer books for children. She is also a contributing editor for *Teaching and Computers*.

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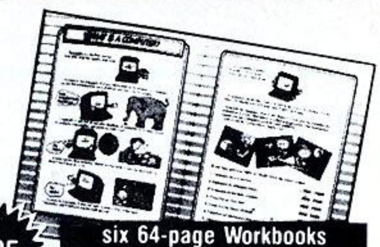

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News for Computer-Using Teachers

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Through the CREWS program (Commodore Resources in Education With States), Commodore is donating computer equipment to help states provide computer training to teachers. To be eligible, an official from a state's department of education must submit a three-quarter page proposal detailing what his or her state is doing to train educators to teach with computers, what equipment the state needs, and its plans for using the donated equipment. For more info, contact your local Commodore dealer.

Free Apple Logo Enhancement Disks

Apple Computer dealers are offering two free disks to help you get the most out of Apple Logo: *Apple Logo Tool Kit* and *Logo Sample Programs.*

The *Apple Logo Tool Kit* disk provides procedures for enhancing Logo's capabilities, such as a text program to do simple word processing, a music program to play tunes, and a key entry program to move the Logo turtle with only one key, such as "F" rather than "FD 10." The *Logo Sample Program* disk contains 30 programs written by users. Although programs on both disks are free, dealers may charge a small fee for copying them onto blank disks.

Timex Drops Out of Computer Market

Because it could not make a "reasonable profit," Timex announced it is no longer manufacturing the Sinclair Computer series. Timex says it will continue to honor warranties and perform repairs. It also will supply parts for Sinclair computers through other companies in the industry.

Free Computer Camp Catalog

In cooperation with the American Camping Association, Verbatim Corp. is offering a free guide, *Camps 'n Computers.* The directory describes more than 100 computer camps throughout the U.S. that kids can attend during the summer. To receive a copy, send a check for $1 to cover postage to Verbatim, *Camps 'n Computers,* Suite 228, 4966 El Camino Real, Los Altos, CA 94022.

The Enchanted Village Provides Computer "Edutainment"

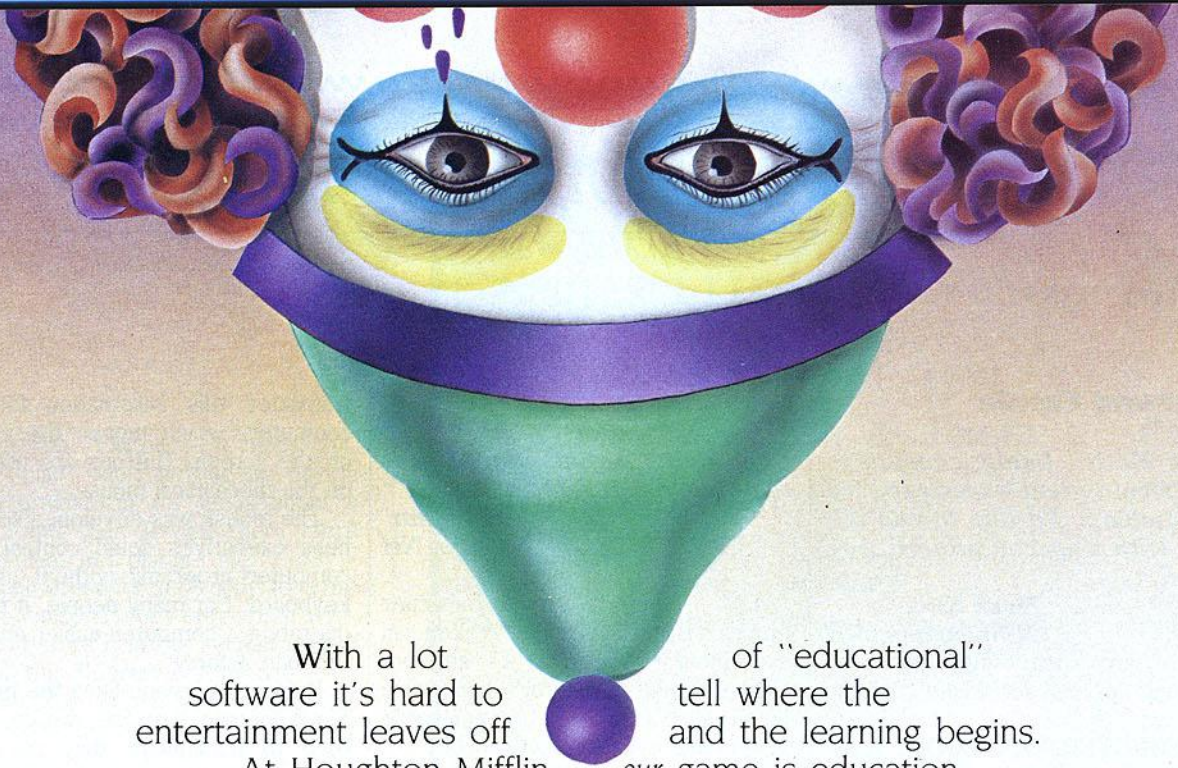
The Enchanted Village, a chain of computer centers that integrates entertainment and education, recently opened its first two outlets in shopping centers in Pittsburgh, Pennsylvania, and Fairfax, Virginia.

Each store sells computer hardware and software and provides a 50-seat "Edutainment" Center for education workshops and theater productions. The centers give free demonstrations to student groups.

Enchanted Village plans to open 16 other stores throughout the country by 1985.

Krell Software Contest

Krell Software Corp. is sponsoring an Educational Software Contest. A total of 150 cash prizes will be awarded to the best original programs. Programs must be on disks or cassettes and may be submitted for Apple, Atari, Commodore, IBM, Radio Shack, Sinclair, and Acorn computers. Contest deadline is December 1, 1984. Contact: Krell, Dept. 44, 1320 Stony Brook Rd., Stony Brook, NY 11790. ■



With a lot of "educational" software it's hard to tell where the entertainment leaves off and the learning begins.

At Houghton Mifflin, *our* game is education. We know that nothing motivates students like success. So we give you courseware with scope and sequence.

SCOPE. Houghton Mifflin Microcourse spans more than 240 reading skills. Over 360 skills in language arts. It all adds up to the most comprehensive skills package ever offered for the personal computer. For practice, for reinforcement, or for remediation, this program has what it takes to enhance any reading or language arts curriculum.

SEQUENCE. This is one courseware series that hangs together. All material is carefully graded and presented for sure and steady progress. Pretests and post tests for each lesson assess mastery. An easy-to-use record keeping system helps chart both individual and class progress. In short, **Houghton Mifflin Microcourse** gives you flexibility without sacrificing continuity.

So if you're entertaining the idea of serious computer-assisted instruction, write us or contact your Houghton Mifflin/TSC® Division representative. We've got the courseware to keep your students ahead of the game.

Houghton Mifflin Microcourse: Reading and Language Arts (grades 3-8)
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Coming soon . . .Microcourse Mathematics: Solving Story Problems (grades 3-8)

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QUESTION CORNER

Year-End Computer Projects

By Molly Watt

A Grand Finale

Dear Molly: Using computers has been a great experience for my students. I'd like to end the year with a special project. Any ideas?

Mark Kula
Minneapolis, MN

Here are some suggestions for rounding up your successful computing year:

COMPUTER YEARBOOK: Have students select their best original computer programs or graphic works from the year. Combine the program listings and artwork in a book. Each student is responsible for filling one page. Print out copies for everyone in the class.

LIGHTS, CAMERA, ACTION: Let your students write and produce a play to show off their computer knowledge. Give students their choice of a mystery, "Who Programmed the End of the World?" or a science fiction thriller, "Martians Meddle with Micros." Or change the Christmas references in our play about the history of computers (November/December 1983 issue) and perform it.

TAKE THE COMPUTER CHALLENGE: Arrange listings of your students' original computer programs on a colorful bulletin board. Challenge them to try each other's programs.

COMPUTER NIGHT: Host a computer night for your students' families. Display kids' work in the classroom and allow students to give their siblings and parents demonstrations on the computer. ☐

Quick Tip: **Borrow a school computer for the summer. After three months of dabbling, you'll have lots of new ideas for next year!**

Monitor or TV?

Dear Molly: Are monitors better than television sets?

Vicki Lynn
Nashua, NH

Yes. Monitors provide sharper graphics than television sets. You can save money by using a TV set, but extensive use of one for viewing fine details such as small letters can cause fatigue and eyestrain.

Color monitors are generally better for games and drill and practice programs with a lot of graphics. Green or amber phosphor monitors are better for word processing. ☐

Computer Pets

Dear Molly: What is a mouse? Is it something I should consider buying for my students?

Susan Meyers
Austin, TX

Like a joystick, a mouse is a hand-held device that moves objects and enters information on the computer screen.

A mouse is a plastic box about the size of a package of cigarettes with wheels and a wire tail that plugs into a microcomputer.

There are two kinds of mice: mechanical and optical.

To use a mechanical mouse, you roll it on a table or desk top. A device inside the mouse detects motions and converts them into digital signals that the computer can read. The computer moves the cursor correspondingly. When the cursor reaches the desired function or command, you press one or more buttons on top of the mouse and the computer performs the function.

An optical mouse works differently. Instead of a table, you roll it on a special tablet covered with dots or lines. As it glides, the mouse determines its position by the pattern of dots or lines on the tablet. Then it translates this information for the computer, which moves the cursor on the screen. Buttons are used as on the mechanical mouse.

The mouse was developed so business executives could control their computer programs without using a keyboard. For many people, it makes operating a computer easier and faster than before.

But not everyone likes the mouse. Some people say the device is so hard to manipulate that you need three hands to use it. A mouse also requires a lot of table space.

As far as schools are concerned, the advantages of using a mouse depend on the software that is created to go with it. If the right software is developed, a mouse could be a helpful device for young children and physically handicapped students who have trouble using a standard computer keyboard.

Before you buy a mouse, check out the software that is available for it. Sometimes you need to buy an interface card to make it work on your computer. Mouse products are currently available for Apple, IBM, and any microcomputers that have a serial port. (That's the place on a computer where you connect a modem.) The average price of a mouse usually ranges between $150 and $500. ☐

A Modern Quill

Dear Molly: Do you know of any new and unusual computer programs to use in language arts classes?

Corey Walls
Halifax, VA

If you have an Apple, I have a terrific program for you! It's a comprehensive language arts package called *Quill.* The program's objective is to develop communication skills through writing. It will be available at the end of this month.

Quill has three parts. The first

part is the "Planner." It helps children "plan" their writing by having them brainstorm for ideas about a topic, and then letting them store these ideas in a planner file.

When students are ready to write about a subject, they enter their writing and store it in the second part of *Quill*, the "Library." Kids use their planner files and a built-in editing system called the "Writer's Assistant" to write their reports.

A third part of *Quill* is a "Mail Bag" that lets students and teachers deliver or read messages. They can send messages to the whole class, one person, or a group of people. For example, Todd wants to know what turtles eat for a report he is writing. So he sends a message to the class to find out who has the responsibility of feeding a pet turtle at home. Donna does, and so she sends back the necessary information to Todd.

Quill also comes with a manual for teachers that's called "Cookbook." The "Cookbook" gives 17 ways to integrate the program into your curriculum. ☐

Software Recommended by Molly:

Quill
Hardware: Apple
Level: Ages 8–14
Price: $150 for master and utility disk, teacher's guide, and "Cookbook."
Contact: D.C. Heath, Division of Electronic Publishing, 125 Spring St., Lexington, MA 02173; 617/862-6650. ■

Do you have a computer question? Send it to Teaching and Computers' *expert, Molly Watt. Molly teaches computer education courses at Keene State College in Keene, New Hampshire. Write her in care of* Teaching and Computers, *730 Broadway, New York, NY 10003.*

SWIFT LEARNINGWARE™

NEW NEW NEW NEW NEW

COMPUTER LITERACY: Problem-Solving with Computers, 2nd EDITION
by Carin E. Horn & James L. Poirot

IF IT'S COMPUTER-NEW, IT'S NEWS!
When the authors and their publisher conclude that the world of computers-and-education has in 3 years changed enough to warrant a second edition of their international bestseller—that's **NEWS!**

COMPUTER LITERACY: Problem-Solving with Computers, by Carin E. Horn and James L. Poirot, was first published by Sterling Swift in 1981. Later there were other attempts to explain computers, but Drs. Horn and Poirot seemed to have said it best.

This time the first edition—already a bestselling, classic text—has been
■ updated ■ expanded ■ refined ■ enlarged

This time they open with a **new chapter,** ■ "Human-Machine Communication," focusing on breaking the language barrier between people and their electronic machines.

NEW CHAPTER! ■ "Introduction to LOGO"—Apple LOGO turtle graphics

UPDATED: ■ "Computer Jargon" ■ "History of Computing"—adding an international flavor plus historical-person narratives ■ "Computer Applications," plus international examples and uses for the disabled ■ "Computer Systems" ■ "Computer Components" ■ "Value of Information in Society," plus international examples.

UPDATED/EXPANDED: ■ "Computer-related Occupations" ■ "Computers and Humans"

GREATLY EXPANDED: ■ "Computer Programming and Design Logic"—more about computer languages, firmware, RAM, ROM, EPROM, EPRO, etc.

REFINED: ■ "Algorithms and Flowcharting" ■ "Beginning BASIC"

MAJOR REWRITE: ■ "Computers in Government"

An *Instructional Manual* closely follows the text.

Sterling Swift says: "This edition is literally the whole world of computers, with bright focus on micros from 1974 to 1984."

Price to be determined.

COM-LIT: Computer Literacy for Kids
by Carin E. Horn and Carroll L. Collins

COM-LIT is also **new.** It is an all-level literacy text for use K-6. From *Words* to *Jargon, Things* to *Computer Systems, People* to *Humans & Machines, BASIC & Logo, Part I,* to *BASIC & Logo, Part III,* **from general to detailed**—*COM-LIT* is an excellent, highly individualized, and visually dynamic system for learning about computer technologies. **Paperback text and Teacher's Edition—ea. $15.95**

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CLASSROOM HAPPENINGS

By Lesli Rotenberg

Girls in the EQUALS program in Berkeley, California, learn about computers through activities designed just for them.

For Females Only

Girls at Novato Junior High School, Novato, California, tend to stop taking math and computer courses in seventh grade. To teach them the importance of these subjects, computer specialist Helen Joseph planned a "Girls Only" Math and Computer Day.

Girls in seventh, eighth, and ninth grades were dismissed from their classes to attend an afternoon session in the library. Helen invited older female students who were excited about math and computers to serve as role models.

"I picked girls that the younger children respected, like a high school cheerleader and a track star," Helen says.

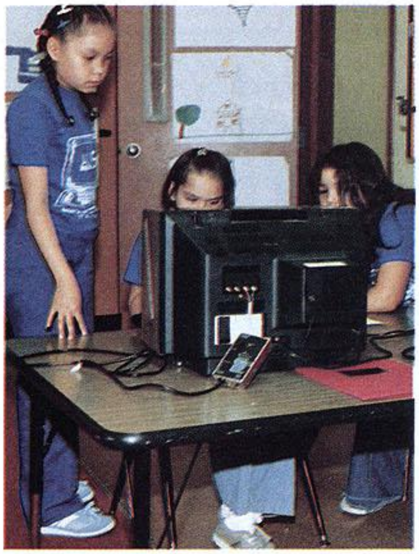
The older girls worked with Helen after school to plan a panel presentation. They each discussed how math and computers fit into their career plans.

"When the cheerleader stood up in her uniform and talked about why she was taking math and computers, she really made an impression," says Helen.

After the discussion, participants were challenged by math strategy games and contests. They also played public domain computer games for Commodore and Apple computers such as "Bagels," an exercise in deduction, as well as games developed by the EQUALS project at the University of California at Berkeley, like "Startling Statements," a program about women in society.

Scheduling an afternoon in the library for girls met a lot of resistance from boys who wanted to be included. But it made the girls feel special. And it showed them that math and computers are not only important, but also fun.

EQUALS is a mathematics in-service program with special focus on attracting and retaining women and minority students. For more information on its publications and workshops, contact Nancy Kreinberg, EQUALS, Lawrence Hall of Science, University of California, Berkeley, CA 94720; 415/642-1843. □



Puyallup Indian children at camp.

Computers on the Reservation

On a reservation in Tacoma, Washington, Puyallup Indian children gather each morning to sing folkloric songs. Then they leave tradition behind to explore the modern world of microcomputers.

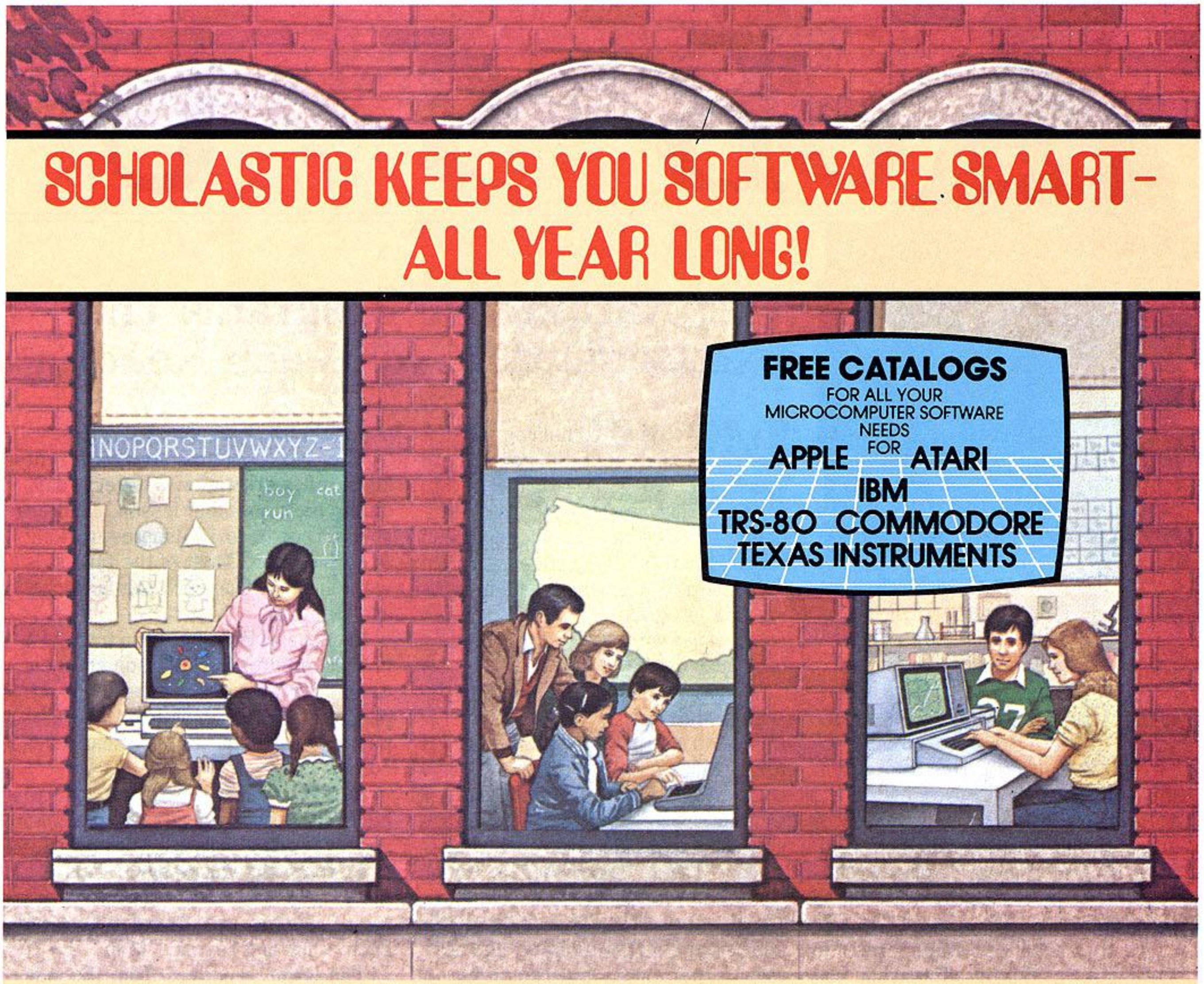
The students, from preschool to high school, don't leave the reservation to attend computer camp. The camp and the computers come to them through a company called American Indian Systems.

With the help of 16 microcomputers, four printers, and a live turtle named Logo, the children learn about programming, word processing, and computer graphics.

At the end of camp, students enter contests for the best computer story, the best BASIC program, the best Logo program, and the best computer design.

At a hot dog picnic and awards presentation, winners receive computers, computer books, and computer-operated toys. Each student gets a diploma and a T-shirt displaying the camp name.

American Indian Systems brings computer camps to other American Indian groups, too. This summer, the company will travel to reservations in Arizona and New Mexico. For more information about computer camps for Native American students, contact Carolyn Granados, American Indian Systems Co., P.O. Box 214844, Sacramento, CA 95821. ■



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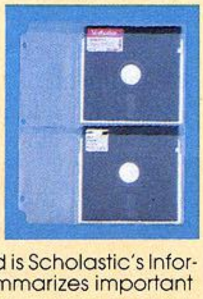

With your program, you get a heavy-gauge 8½" x 11" vinyl storage pouch-page that's three-hole punched for standard 8½" x 11" ring binders, and capable of holding two disks or four cassettes. Also included is Scholastic's Information Sheet which summarizes important program data: grade level, instructional objectives, loading instructions and a brief description of the program.

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CIRCLE 30 ON READER SERVICE CARD

Kids in the Writing to Read program in Cary, NC, use a variety of equipment as pictured on the next four pages. In this photo, a child reads along with a cassette tape recorder.

BOOTING UP

Two Nationwide Programs That Use Computers to Teach Reading

By Lesli Rotenberg

Two widely used reading programs in this country are the Writing to Read program and the Individual Reading Instruction System (IRIS).

Both use computer software programs as an instructional tool. Both have elicited a great deal of excitement from the teachers who "boot" them up.

But the similarities stop there. The Writing to Read program teaches kindergarten and first grade children to read by writing stories that use phonemic spelling. IRIS teaches intermediate graders to read through a series of newspaper stories and activities that develop comprehension skills.

Let's take a closer look at these two programs — their philosophies, their teaching materials, and schools that actually use the programs.

WRITING TO READ PROGRAM

Approximately 10,000 kindergartners and first graders in 100 schools in eight states and the District of Columbia are participating in an IBM-sponsored reading project called Writing to Read. The father of the two-year pilot is John Henry Martin, a former teacher and administrator, who believes that children should learn to read by first learning to write. "Human hands," he says, "are important entry points into a child's brain."

Children in Martin's program learn to write words by combining 42 phonemes — the sounds needed to speak the English language — into words. This process teaches students to spell words phonemically, rather than as the dictionary might spell them. For example, children using the program learn to spell the word *rabbit* with one *b*, because they only hear one *b*.

Writing to Read uses specially designed software to provide some of this instruction. The computer is used, Martin says, because it gives children individual attention, as well as multisensory (tactile, visual, and auditory) experience in constructing words. Tactile experience is gained by typing words into the computer; visual experience, by seeing words constructed on the monitor; and auditory experience, by repeating or chanting phonemes along with computer voice output.

As children learn to write words through these sensory experiences, they assemble the words into sentences and stories, which they in turn learn to read. You could say these kids write their own reading text. Just how is this instruction set up on a day-to-day basis? Let's take a look at a typical school.

A VISIT TO BRIARCLIFF SCHOOL

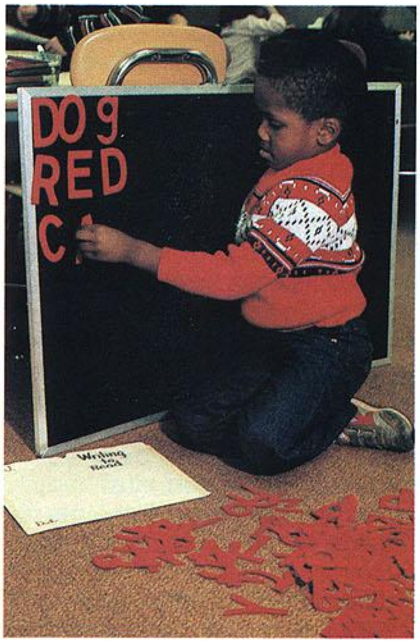
Tiny bodies fill the doorway to the Writing to Read laboratory at Briarcliff Elementary School in Cary, North Carolina. The lab is a cheerful, busy room that is divided into workstations stocked with an impressive assortment of high tech equipment. Several children scurry to computer terminals and adjust earphones to fit their heads. Some run to another corner of the room and load paper into electric typewriters. Still others pop cassette tapes into recorders.

The lab contains five different kinds of workstations. Every day, during their one-hour lesson, children spend from 10 to 15 minutes working at each station. Most of the time kids work in pairs. One such pair is Rachel and Brandon.

Rachel and Brandon sit in front of a microcomputer. They adjust their earphones and make sure they are plugged into the computer. The earphones enable the two to hear a recorded voice.

Rachel presses the space bar to begin the lesson. A picture of a man appears on the screen. A friendly female voice introduces him. "This is a man," says the voice. "Say the word *man*." Rachel and Brandon look at each other and repeat, "Man."

The letter *m* moves from the side to the center of the screen. The voice says, "Say *mmm*." The chil-



Student forms letters with felt.

FOR READING

Writing to Read includes computer programs that teach phonetics.

dren obey the voice. Then they type *m.* They learn the other sounds in the word *man* the same way.

Rachel giggles when the voice asks her to clap her hands and sing the sounds she learned. She thinks it's silly, but she joins in when Brandon starts stamping his feet to the tune provided by the computer.

Now the two kids combine the sounds and type the word *man.* The computer voice says, "End of *man,*" and the children abandon their seats.

They move to the next station, a table that contains tape recorders and earphones. Here, another recorded voice instructs them to write the words they have learned, in work "journals." Rachel and Brandon write the words for *man, cat, fish,* and *dog* — all words they have recently learned on the computer.

The children run to the third station, the last station in which they concentrate on constructing words. Here they use a variety of materials, such as modeling clay, crayons, felt letters, sticks of chalk, and puzzle pieces, to mold the letters of their new words.

After 10 minutes, Rachel and Brandon move to the fourth station, which is equipped with IBM Selectric typewriters. Rachel and Brandon use adjacent typewriters to type the words they've learned, assemble them into sentences along with other words, and eventually combine their sentences into stories.

Their teacher comes by, looks at what they have typed, reads it along with them, and ushers them to the final station. Here they assume comfortable positions on carpeted floor and prepare a cassette player for hearing *Blueberries for Sal.* They open a book with the same title, turn on the recorder, and follow along. This activity is designed primarily to give children the chance to see the standard spelling of words.

PROGRAM EVALUATION

Teachers at Briarcliff give Writing to Read good grades. They say the program encourages students to want to read and to be creative and uninhibited in their writing.

"I was hesitant at first, but I really enjoy it now," says Nan Davidson, kindergarten teacher at Briarcliff.

Nan and the other kindergarten teachers say parents are happy with the program, too. Some parents report that their kids like Writing to Read so much that they refuse to miss school, even if they're sick.

Some of the students' parents were concerned that their children would learn poor spelling habits from the program's phonemic technique. But teachers say that students who were in the program last year, and who moved up to grades that don't use the program, quickly adapted to "correct" spelling. In fact, many of the teachers say that the students who have graduated from the Writing to Read program spell better than other students.

Child writes words as they are dictated to him on tape.

Despite insiders' enthusiasm, some outsiders criticize the Writing to Read program as subjecting kids to monotonous drill and concentrating too heavily on phonetics. Dr. Bill Barber, reading professor at Berry College in Mount Berry, Georgia, says the program "violates reading research that shows the importance of whole-word learning."

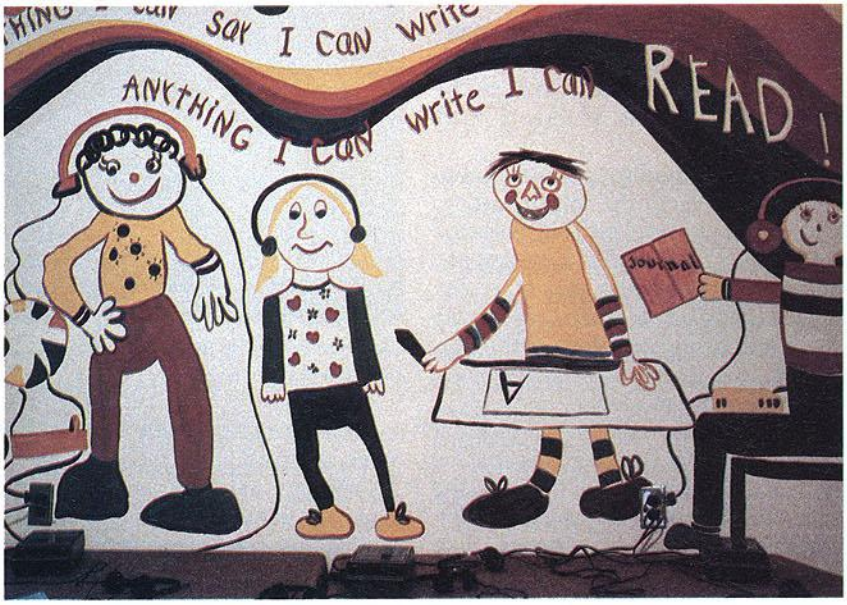
Barber also says that the program does not make interesting use of the computer. "Typewriters and tape recorders could be used to perform all of the program's functions," he says.

As far as official measurements of the program's effectiveness go, at the end of this year, the Educational Testing Service in Princeton, New Jersey, will release results of a study it has conducted on the two-year pilot program. If the results are positive, IBM plans to market the Writing to Read program nationwide.

Last June, many of the school districts participating in Writing to Read, including the Wake County Public School System in North Carolina, tested their students' reading skills with the California Achievement Test. The children as a group scored consistently higher in reading skills than 89 percent of their peers nationally. These results have made believers out of many educators associated with the program.

(continued)

BOOTING UP FOR READING


Say I can write
Anything I can write I can READ!
Journal
A

Students at Briarcliff School, Cary, NC, drew the figures for this mural.

(continued from page 17)

For More Information on Writing to Read
Contact IBM, P.O. Box 1328, Boca Raton, FL 33432; 305/998-1660.

INDIVIDUAL READING INSTRUCTION SYSTEM

Children who learn to recognize words, facts, and story lines could be considered minimally adequate readers; but only after they are able to draw inferences, support or reject an author's argument, absorb new vocabulary, and more, can children be considered good readers. In short, students must learn to "comprehend" material thoroughly.

The Individual Reading Instruction System (IRIS) uses computers to teach comprehension skills to intermediate grade students. Developed by the WICAT (World Institute for Computer Assisted Teaching) Education Institute in Provo, Utah, and funded by the government, the program consists of a series of newspaper stories on disks. Students must read a story carefully — in other words, thoroughly comprehend it — in order to perform an activity that appears after it. Activities fall into one of five comprehension categories: drawing inferences, deleting unnecessary information, constructing logical arguments, using new vocabulary, or using study skills to investigate the reading material further.

All of the stories focus on fifth grade level curriculum, but range in readability from third to seventh grade. Teachers set the reading level for each student, and the computer offers appropriate stories to read.

The program is highly interactive. Responses help kids find correct answers, using knowledge they have already acquired, rather then just telling them the answers. This approach is the basic premise behind schema theory, a model used to teach reading comprehension.

A management system tracks and records each student's progress. If a student is unsuccessful at a particular level, the program automatically locks the student out of more challenging stories until the student experiences success.

IRIS has been used by more than 500 children in 12 schools throughout the country. One of these schools is Frenchtown Elementary.

A VISIT TO FRENCHTOWN SCHOOL

Each week at Frenchtown Elementary School in East Greenwich, Rhode Island, fourth, fifth, and sixth graders file into a computer lab for an hour to read IRIS "newspapers" on the school's Apple computers.

Eleven-year-old Sam is one of the participants. He hops into his seat and slides a disk called the "user disk" into the disk drive. The computer instructs him to enter his "sign-on name."

After Sam types his name, a menu appears on the computer screen.

A MESSAGE FROM PLANET ZORRON

Writing sample from Writing to Read Program.

Five-year-old Jimmy wrote this story. He is a student in the Writing to Read program at Briarcliff School in Cary, North Carolina. The program teaches students to read by having them write stories using phonemic spelling (the way words sound).

"I came from the planet Zorron. Everyday the temperchure is fourty degrees below zerox. I wear 1000 jackets . . . . The planet Zorron is 1000 times bigger then our sun. Zorron is the only planet in the alpharo solar stem. There are 9 suns. 8 of them are black holes and the last one is a white dwarf that has sun spots. When ufo's come by they all said gosh are you ugly! What is this entellegent life? And all of them made there ship go up and down."

BOOTING UP FOR READING

Called "Newsstand," it is a list of newspapers to read. These newspapers have funny names, like *The Aurora Boring Analysis, New York Chimes,* and *Pittsburgh Squealer.*

Sam decides to read a paper called the *Portland Cementer.* He presses the number corresponding to that newspaper, removes the user disk, and inserts the *Portland Cementer* disk into the disk drive.

The front page of a mock newspaper appears on the screen. It lists headlines for five different stories. Sam moves the cursor to a title called "Playin' All Summer." Then he presses the RETURN key.

Instructions for the exercise appear on the screen. They say, "This newspaper has a problem. The stories were written by poor writers. Sometimes they put in sentences that don't belong."

As editor of the newspaper, Sam must read the entire story first. The story is about a boy named Gregory Wyczynski who overcomes boredom one summer by learning to play the banjo. After Sam reads the story, he must go back and remove sentences that don't belong.

Sam has chosen a story with a *deletion activity.* That is one of the five activity formats in the program. The other formats, labeled *study skills, argumentation, vocabulary,* and *inference from text,* require that students interact with the computer in the following ways:

Study Skills

A story called "What is a Year?" talks about the length of time it takes three planets — Mercury, Venus, and Earth — to circle the sun. Students use map skills to illustrate the concept. Then they look at an actual map and answer questions like, "What object do all three planets circle?" (The answer is the sun.)

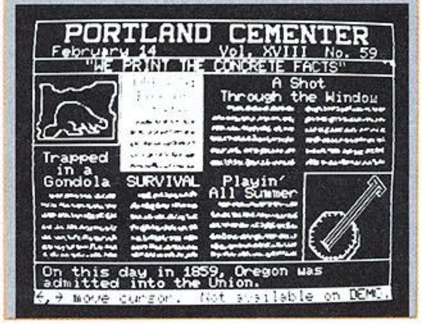
Argumentation

In a newspaper editorial, the author says that people should not have cats for pets. To prove this point, the author must show two things: cats cause problems for owners, and cats aren't any fun. Students read the editorial and find key words that support the author's argument. Then they determine if statements from the text express fact or opinion.

READ ALL ABOUT IT!

Menu from IRIS program.

This is the front page of the *Portland Cementer,* one of 42 mock newspapers in the Individual Reading Instruction System (IRIS). Each newspaper contains five stories and related activities that help students develop reading comprehension skills.



PORTLAND CEMENTER
February 14 Vol. XVIII No. 59
"WE PRINT THE CONCRETE FACTS"
A Shot Through the Window
Trapped in a Gondola
SURVIVAL
Playin' All Summer
On this day in 1859, Oregon was admitted into the Union.
←,→ move cursor. Not available on DEMO.

Vocabulary

A crossword puzzle is organized around a root word like *act.* The student gets two clues for each word in the puzzle, such as, "One who plays a part in a play, on televison, or in the movies." (The answer is *actor.*) Other words in the puzzle include *reaction, action, active,* and *activity.*

Inference from Text

"Jan's Secret" is an example of the inference format. In the story, Jan is embarrassed to attend school because she has braces. Children make judgments about how Jan feels. Then they select key words from the story to defend their conclusions.

PROGRAM EVALUATION

Frenchtown's principal, Tony D'Acchioli, says the teachers like IRIS, because it lets them control the reading level and pace of students.

Students like the program, too. Their facial expressions reveal their fascination with the stories.

"If we had a fire drill while they were reading a story," Tony says, "the children would not budge."

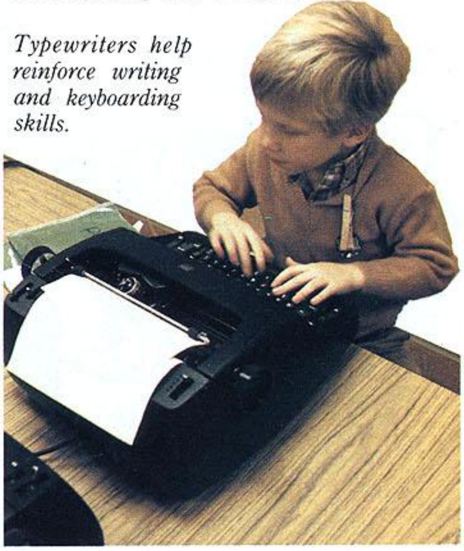
Federal funding for the program ended last year for all schools. But Frenchtown School, as well as every other field test site, decided to purchase and continue using the software this year.

Although official results for this type of program are difficult to quantify, field tests show that students in the IRIS program significantly outscore other students across the nation who took the Prescriptive Reading Inventory.

For More Information On IRIS

The IRIS program may soon be available to the general public. The price of the software and the machines it will be provided for have not been determined yet. Contact WICAT Education Institute, 931 East 300 North, Provo, UT 84603; 801/375-3855. ■

Lesli Rotenberg is assistant editor for *Teaching and Computers.*



Typewriters help reinforce writing and keyboarding skills.

LIGHT THE WAY TO LOGO WITH . . .

LOGO OLYMPICS!

By Tom Lough, Steve Tipps, and Rebecca Poplin

Celebrate the 1984 Summer Olympics with four gold-medal Logo activities. The activities also will help students "go that extra mile" in developing language arts and math skills.

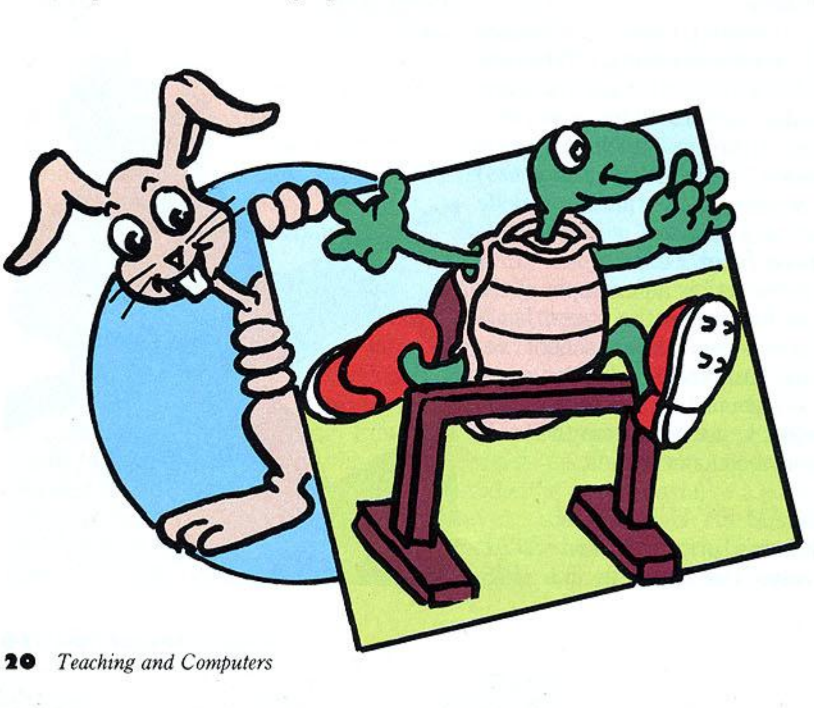
Take your mark . . . . Get set . . . . GO! It's time for the Logo Olympics, an exciting, *event*ful take-off on the 1984 Summer Olympics.

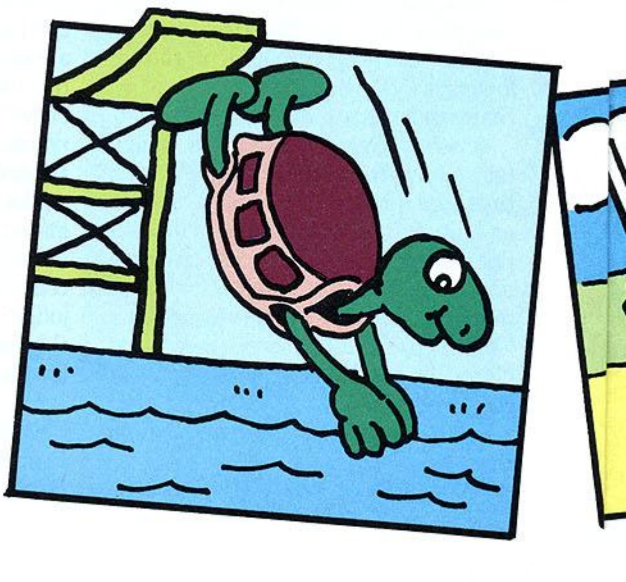
Challenge students to sprint faster than speeding turtles, leap turtle hurdles in a single bound, and last the duration in a grueling Maraturtlethon! They'll also get a chance to light the Logo Olympic torch, create five Logo designs in a special Logo event called the Penturtlethon, and write their own procedures for Olympic Minute commercials.

All of the Logo Olympic events, modeled after sports events in the Summer Olympics, will develop your students' Logo programming skills, from simple PRINT and turtle movement commands, to advanced procedures and geometric patterns.

But that's not all! The events will also help students learn research and writing skills, estimation, angles, slope, geometry, and problem solving. Materials in the Olympic resource list at the end of the article will help you expand the Olympic theme to include other subjects, too.

You can use any version of Logo for all but the first event, which requires a Logo version that includes a text screen for printing words. Popular Logo versions include Krell, Terrapin, and Commodore Logos (licensed by MIT); Apple and Atari Logos (developed by Logo Computer Systems, Inc. or LCSI); TI Logo (Texas Instruments); and Color Logo (Radio Shack), although this version does not have a text screen.





EVENT #1 Olympic Minute

Subject: Language Arts (Writing, Research Skills)
Objective: Students use the Logo text screen to write short fact files on events and contenders in the Summer Olympics.
Prerequisites: Students must know how to use the PRINT command and to define procedures.
Preparation: Gather reference materials on Summer Olympics, including books, magazine and newspaper articles, and pamphlets. *(See resource list at end of article).*

As the 1984 Summer Olympics approach, promoters of the event are increasing fans' anticipation by presenting Olympic Minutes, 60-second television spots full of interesting facts on an Olympic contender or event. A good way for students to learn more about past and present Summer Olympics is to have them create Olympic Minutes of their own.

Have students use your Summer Olympic resources to find important facts about contenders or events in the Olympics. Tell them to organize these facts into Olympic Minute procedures. The procedures should present less than one reading minute of material on the Summer Olympics. Here's an example:

```
TO OLYMPIC.MINUTE.1
  PRINT [DID YOU KNOW THAT MUHAMMAD ALI, ONCE]
  PRINT [KNOWN AS CASSIUS CLAY, WON THE GOLD]
  PRINT [MEDAL FOR BOXING IN ROME, ITALY,]
  PRINT [DURING THE 1960 SUMMER OLYMPICS?]
  PRINT [MUHAMMAD ALI LATER BECAME THE HEAVYWEIGHT]
  PRINT [BOXING CHAMPION OF THE WORLD.]
END
```

After students have entered their facts, have them add illustrations, flashing borders, or animated sprites.

Call up Olympic Minutes between other Logo Olympic events or at the beginning and end of each day you conduct your Logo Olympics.

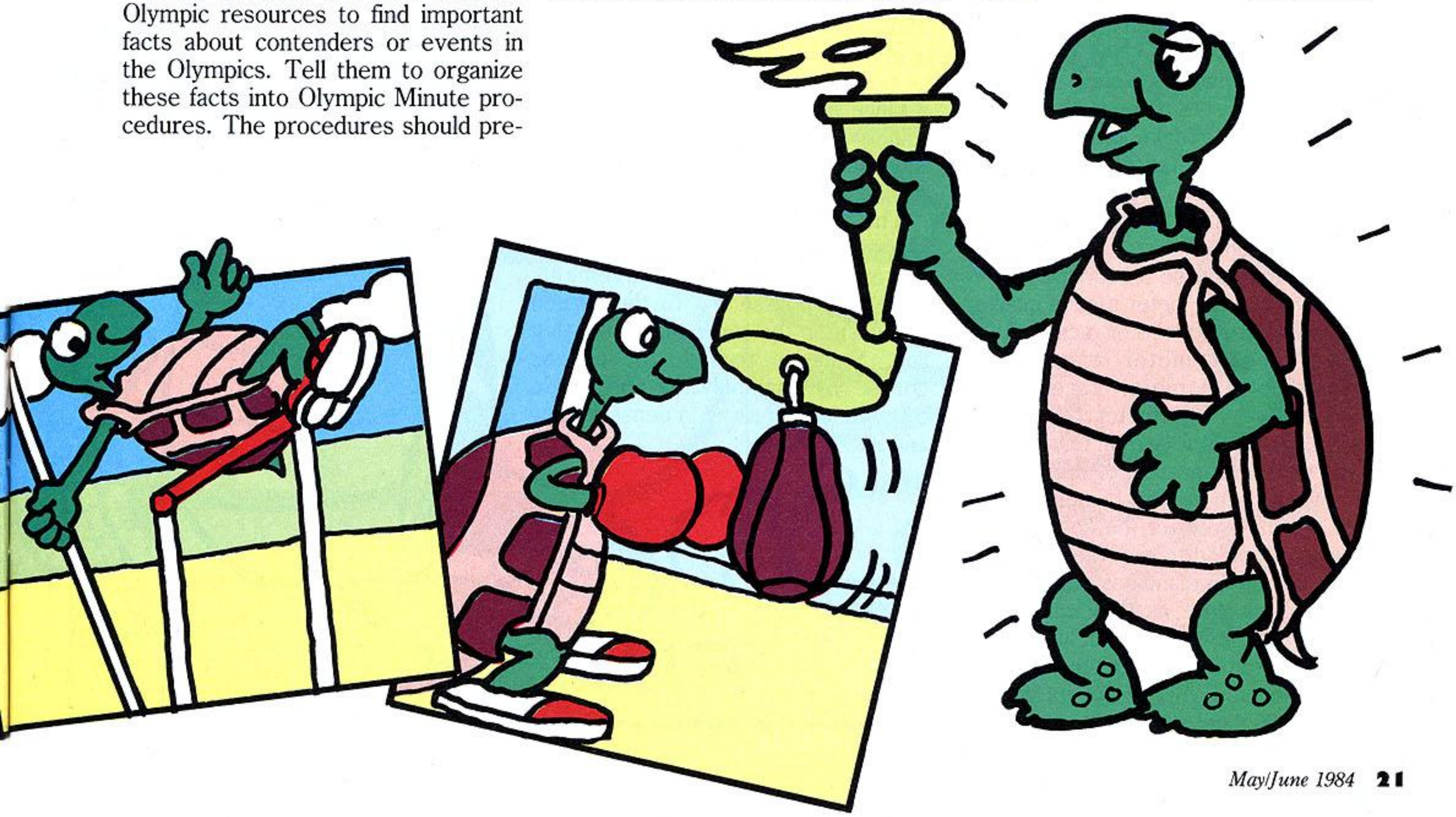
Students can also use the Olympic Minutes to create database files on athletes and sports events. For example, they could type in the word MODERN.PENTATHLON and have Logo respond with the Olympic Minutes that provide information on that event. Here is a possible MODERN.PENTATHLON program:

```
TO MODERN.PENTATHLON
  OLYMPIC.MINUTE.22
  OLYMPIC.MINUTE.31
END

TO OLYMPIC.MINUTE.22
  PRINT [THE MODERN PENTATHLON CONSISTS OF FIVE EVENTS.]
  PRINT [THEY ARE HORSEBACK RIDING, FENCING, SHOOTING,]
  PRINT [SWIMMING, AND RUNNING.]
END

TO OLYMPIC.MINUTE.31
  PRINT [BOB NIEMAN, A FORMER MODERN]
  PRINT [PENTATHLON WORLD CHAMPION,]
  PRINT [HAS A GOOD CHANCE TO WIN A MEDAL]
  PRINT [IN THE MODERN PENTATHLON EVENT IN THE]
  PRINT [1984 SUMMER OLYMPICS IN LOS ANGELES.]
  PRINT [BOB NIEMAN LIVES IN SAN ANTONIO, TEXAS.]
END
```

(continued)



EVENT #2 Turtle Track

Subject: Math (Estimation, Time, and Measurement Skills)

Objective: Students maneuver the Logo turtle around racetracks and over hurdles.

Prerequisites: Students must be able to use FORWARD, BACK, RIGHT, and LEFT commands.

Preparation: Make one screen-size transparency of each racecourse illustrated on the opposite page. Tape Racecourse #1 to the computer screen. Boot Logo into your computer and move the turtle to the starting line for the beginning of the first race.

The Turtle Track events consist of maneuvering the Logo turtle around progressively more difficult racecourses. The object of each race is to complete the course, from start to finish, as quickly and accurately as possible. To do this, students will have to use FORWARD, BACK, LEFT, and RIGHT commands. If the turtle steps off the track three times in the race, the student must start over.

Use a stopwatch to time students, starting from the moment they touch the keyboard. Make bronze, silver, and gold medals out of aluminum foil and construction paper, and award them to the three fastest competitors in each event.

Use Racecourse #1 for the following events: 100 meter race (a quarter of the track); 200 meter race (half the track); 400 meter race (once around); 800 meter race (twice around); and 400 meter relay (each member of a four-person team moves the turtle one-quarter of the track).

Allow each student a practice run to get the "feel" of the course. Students should discover that using as few turtle commands as possible and staying as close as they can to the inside of the track result in a more efficient run and better time.

Conduct separate events for the 200, 400, and 800 meter races and the 400 meter relay.

A relay is an event in which each member of a team completes part of the course. Competitors carry a baton around their portion of the racetrack and then pass the baton to the teammate who will run next. In the Turtle Relay, students must switch places at the computer when the turtle arrives. The intervals are marked with dotted and solid lines on the track.

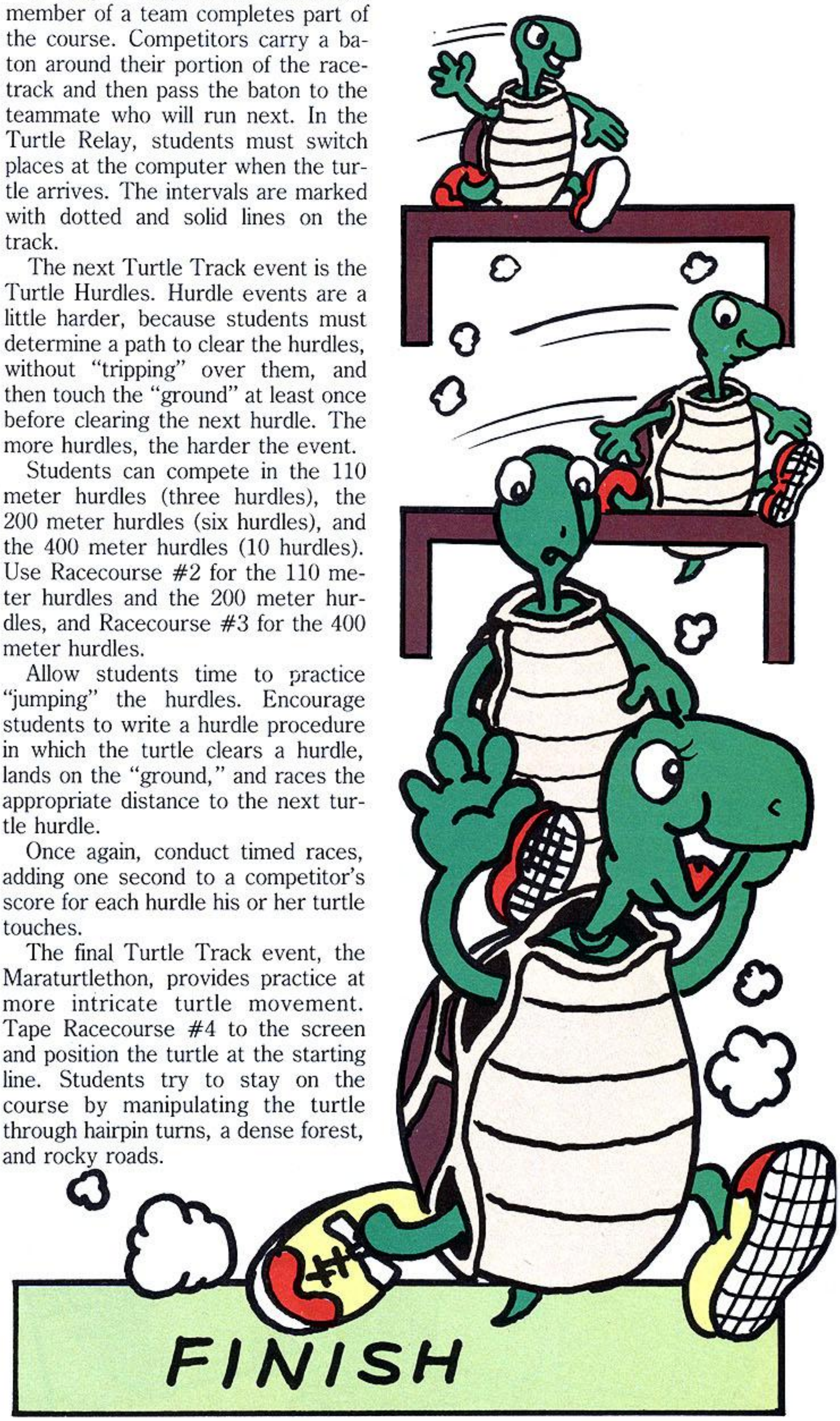
The next Turtle Track event is the Turtle Hurdles. Hurdle events are a little harder, because students must determine a path to clear the hurdles, without "tripping" over them, and then touch the "ground" at least once before clearing the next hurdle. The more hurdles, the harder the event.

Students can compete in the 110 meter hurdles (three hurdles), the 200 meter hurdles (six hurdles), and the 400 meter hurdles (10 hurdles). Use Racecourse #2 for the 110 meter hurdles and the 200 meter hurdles, and Racecourse #3 for the 400 meter hurdles.

Allow students time to practice "jumping" the hurdles. Encourage students to write a hurdle procedure in which the turtle clears a hurdle, lands on the "ground," and races the appropriate distance to the next turtle hurdle.

Once again, conduct timed races, adding one second to a competitor's score for each hurdle his or her turtle touches.

The final Turtle Track event, the Maraturtlethon, provides practice at more intricate turtle movement. Tape Racecourse #4 to the screen and position the turtle at the starting line. Students try to stay on the course by manipulating the turtle through hairpin turns, a dense forest, and rocky roads.



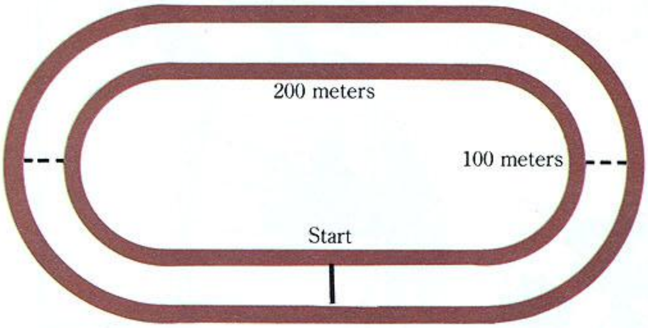
LOGO OLYMPICS!

TURTLE TRACK RACECOURSES

Directions: Make screen-size transparencies of each of the four courses below. One at a time, tape the courses to the Logo screen and have students run the turtle through each.

RACECOURSE #1

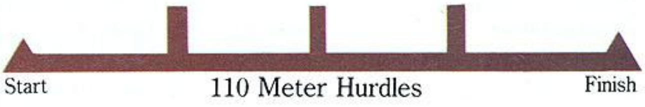
Events: Sprints and Middle Distances

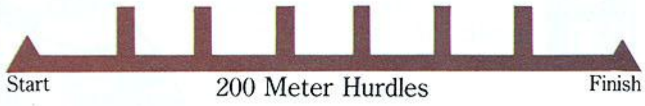

200 meters
100 meters
Start

100 Meters = One-quarter Track
200 Meters = Half the Track
400 Meters = Once Around
800 Meters = Twice Around

RACECOURSE #2

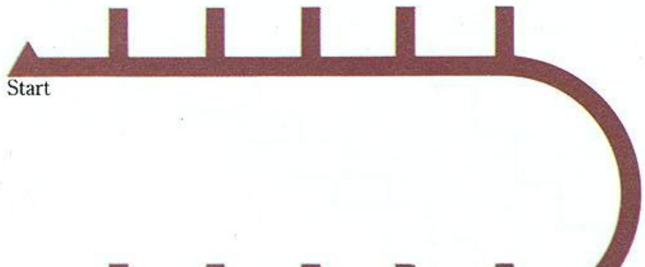
Events: 110, 200 Meter Turtle Hurdles


Start
110 Meter Hurdles
Finish


Start
200 Meter Hurdles
Finish

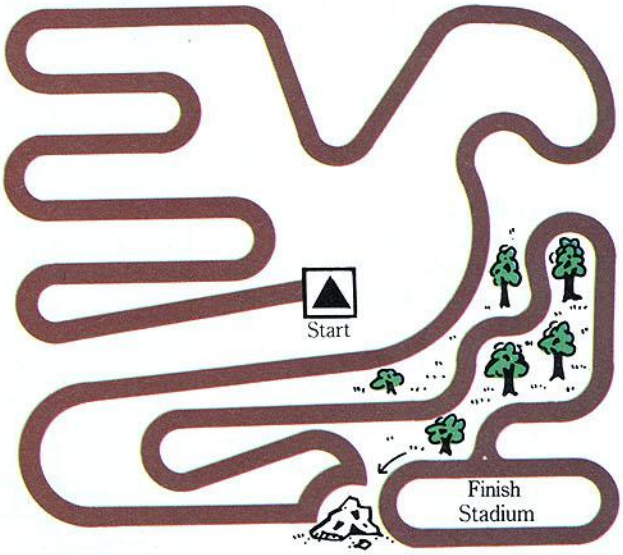
RACECOURSE #3

Event: 400 Meter Turtle Hurdles


Start
Finish

RACECOURSE #4

Event: Maraturtlethon


Start
Finish
Stadium

(continued)

EVENT #3: Light the Torch

Subject: Math (Slope, Estimation)
Objective: Students explore slope (the slant of a line) by programming the turtle to climb steps and light a torch.
Prerequisites: Students must be able to use FORWARD, BACK, RIGHT, and LEFT commands and to define procedures.
Preparation: Type in the *Light the Torch* program for your Logo version. *(See opposite page.)* The program listing labeled LCSI Logo is for Atari and Apple Logos; the MIT listing is for Commodore, Krell, and Terrapin Logos.

Have students use rulers to measure the height and depth of steps in the school. What makes some steps easier to climb than others? *(The shorter the height from step to step, the easier they are to climb.)*

Have students draw steps using Logo. Start with single turtle movement commands, such as: FD 20 RT 90 FD 20 LT 90 FD 20. Then use the REPEAT command to make several steps, such as: REPEAT 10 [FD 20 RT 90 FD 20 LT 90].

Now, have students create a STEP procedure, such as:

```
TO STEP
  FD 20 RT 90 FD 20 LT 90
END
```

To run the procedure, students type STEP.

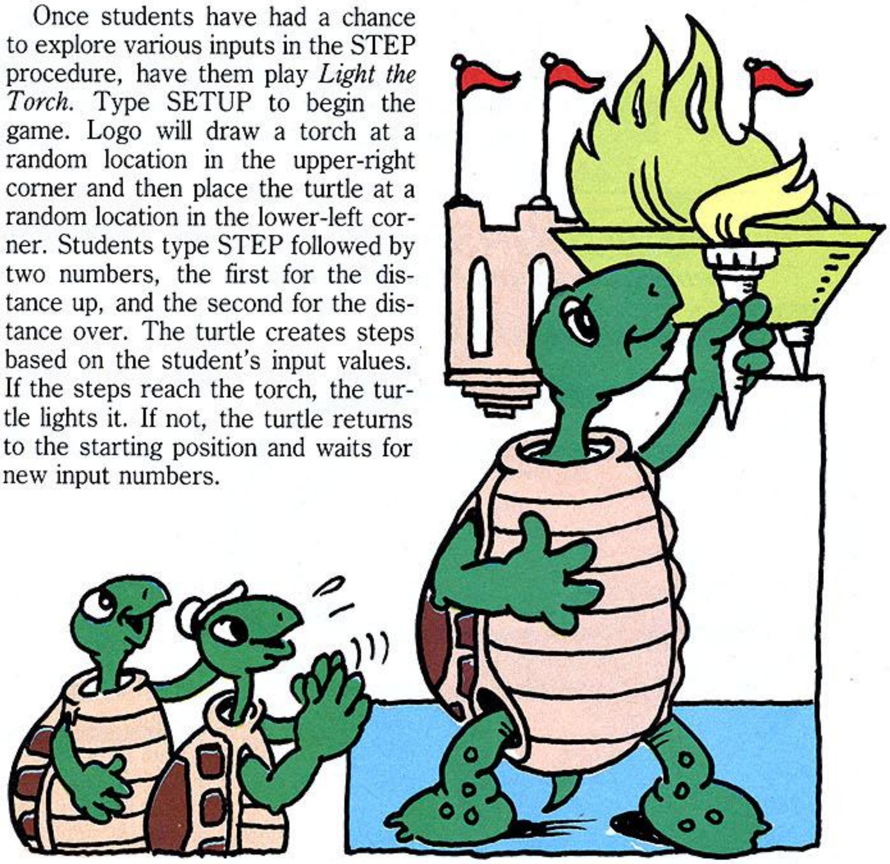
Now, challenge students to write a STEP procedure with variables that will allow them to create steps of any depth and breadth. Here's one possible example:

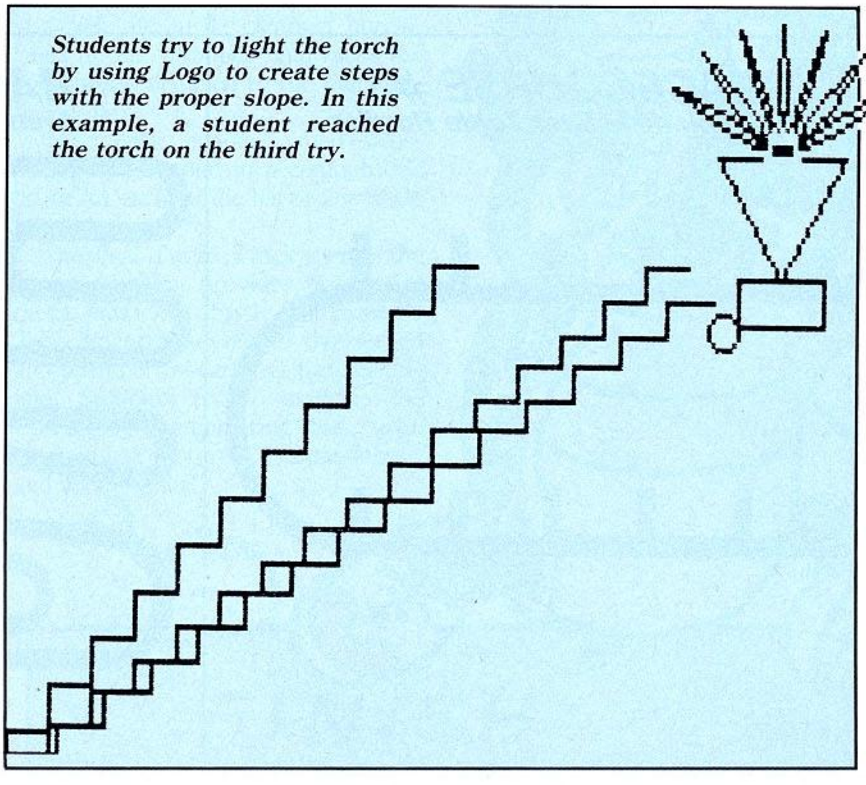
```
TO STEP :UP :OVER
  FD :UP RT 90 FD :OVER LT 90
END
```

To run this procedure, students type STEP followed by two numbers, the first for the distance up, and the second for the distance over.

Tell students to make steps from the lower-left to the upper-right corner of the screen.

Once students have had a chance to explore various inputs in the STEP procedure, have them play *Light the Torch.* Type SETUP to begin the game. Logo will draw a torch at a random location in the upper-right corner and then place the turtle at a random location in the lower-left corner. Students type STEP followed by two numbers, the first for the distance up, and the second for the distance over. The turtle creates steps based on the student's input values. If the steps reach the torch, the turtle lights it. If not, the turtle returns to the starting position and waits for new input numbers.





Students try to light the torch by using Logo to create steps with the proper slope. In this example, a student reached the torch on the third try.

PROGRAM LISTINGS FOR LIGHT THE TORCH

Directions: Type in the listing for your Logo version and follow the program instructions discussed on page 24.

MIT Version (Commodore, Krell, Terrapin)

```
TO SETUP
 PC 1
 TORCH.STAND
 TURTLE.STAND
END

TO TORCH.STAND
 PU SETX ( 100 - RANDOM 50 )
 SETY ( 100 - RANDOM 50 )
 PD SETH 90 STAND
END

TO TURTLE.STAND
 PU SETX ( RANDOM 30 ) - 120
 SETY ( RANDOM 30 ) - 60
 SETH 0
 MAKE "TX XCOR
 MAKE "TY YCOR
 PD
END

TO STAND
 REPEAT 2 [FD 30 RT 120] FD 30 BK 30
 LT 60 FD 10 LT 90 FD 10
 MAKE "X XCOR
 MAKE "Y YCOR
 CORNER
 LT 90 FD 20 LT 90 FD 10 LT 90 FD 10 PU
END

TO CORNER
 REPEAT 8 [FD 3 RT 45]
END

TO STEP :UP :OVER
 PC 1
 FD :UP RT 90
 FD :OVER LT 90
 CHECK :UP :OVER
END

TO CHECK :UP :OVER
 IF ( :X - XCOR ) < 10 CHECK.Y :UP :OVER STOP
 IF YCOR > ( :Y + 10 ) PRINT [TRY AGAIN] GOBACK
STOP ELSE STEP :UP :OVER
END

TO CHECK.Y :UP :OVER
 IF XCOR > :X + 10 PRINT [TRY AGAIN] GOBACK STOP
 IF YCOR > :Y + 10 PRINT [TRY AGAIN] GOBACK STOP
 IF :Y - YCOR < 10 FIRE STOP ELSE STEP :UP :OVER
END

TO GOBACK
 PU SETX :TX SETY :TY
 SETH 0 PD
END

TO FIRE
 PU SETX :X SETY :Y SETH 0
 FD 10 RT 90 FD 10 LT 90 FD 26 RT 60 PD
 REPEAT 7 [FLAME LT 20]
 RT 75
 PRINT [YOU GOT IT!]
END

TO FLAME
 PC 2
 RT 5 FD 15 LT 10 FD 15 RT 10 BK 15 LT 10 BK 15 RT 5
END
```

LCSI Version (Apple, Atari)

```
TO SETUP
TORCH.STAND
TURTLE.STAND
END

TO TORCH.STAND
PU SETX (100 - RANDOM 50)
SETY (100 - RANDOM 50)
PD SETH 90 STAND
END

TO STAND
REPEAT 2 [FD 30 RT 120] FD 30 BK 30 LT 60
FD 10 LT 90 FD 10
MAKE "X XCOR
MAKE "Y YCOR
CORNER
LT 90 FD 20 LT 90 FD 10 LT 90 FD 10 PU
END

TO CORNER
REPEAT 8 [FD 3 RT 45]
END

TO TURTLE.STAND
PU SETX ((RANDOM 30) - 120)
SETY ((RANDOM 30) - 60)
SETH 0
MAKE "TX XCOR
MAKE "TY YCOR
PD
END

TO STEP :UP :OVER
FD :UP RT 90
FD :OVER LT 90
CHECK :UP :OVER
END

TO CHECK :UP :OVER
IF (:X - XCOR) < 10 [CHECK.Y :UP :OVER STOP]
IF YCOR > (:Y + 10) [PRINT [TRY AGAIN] GOBACK STOP]
[STEP :UP :OVER]
END

TO CHECK.Y :UP :OVER
IF XCOR > (:X + 10) [PRINT [TRY AGAIN] GOBACK STOP]
IF YCOR > (:Y + 10) [PRINT [TRY AGAIN] GOBACK STOP]
IF (:Y - YCOR) < 10 [FIRE STOP] [STEP :UP :OVER]
END

TO GOBACK
PU SETX :TX SETY :TY SETH 0 PD
END

TO FIRE
PU SETX :X SETY :Y SETH 0
FD 10 RT 90 FD 10 LT 90 FD 26 RT 60 PD
REPEAT 7 [FLAME LT 20]
RT 75
PRINT [YOU GOT IT!]
END

TO FLAME
RT 5 FD 15 LT 10 FD 15 RT 10 BK 15 LT 10 BK 15 RT 5
END
```

(continued)

LOGO OLYMPICS!

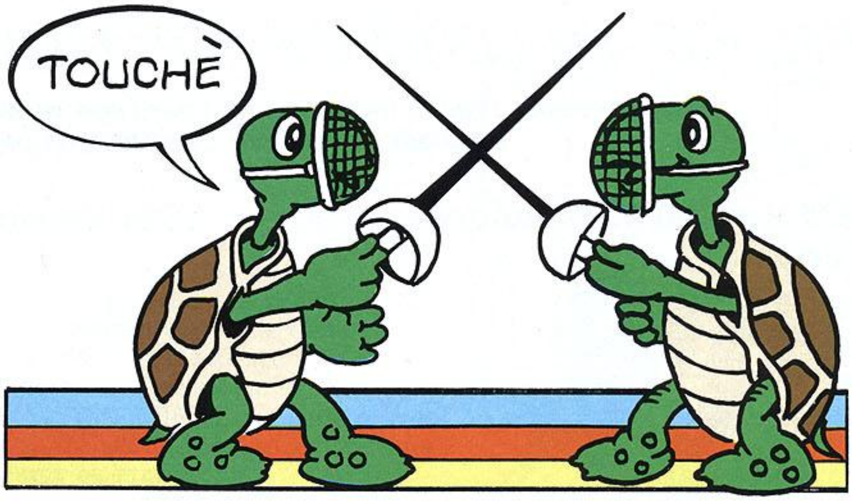
EVENT #4
Penturtlethon

Subject: Math (Geometry, Problem Solving)

Objective: Student teams create five geometric shapes.

Prerequisites: Students must be able to define procedures for squares, triangles, rectangles, circles, and stars.

Preparation: Draw each of the five Logo designs at right on separate sheets of paper. Give each student a copy.



Explain to students that the modern pentathlon is an Olympic event that includes five sports: swimming, shooting, horseback riding, fencing, and running. (*Penta* stands for five.) The Penturtlethon contains five events, too. These events require the construction of five designs that students create, first out of paper, and then on the screen with the Logo turtle.

Have student teams of two or three cut out different-size squares, rectangles, triangles, circles, and stars from construction paper or felt. They then use these shapes to construct each of the five Logo designs in the box below. Have teams describe in words how they make each design, step by step. Here's how a student team could describe how to make a star design.

To Make a Star Design:

First, find five stars that are all the same size.

Then put one point of each star together on the same spot.

The stars should all be exactly the same distance apart.

That's all.

When student teams have finished creating the designs on paper, they are ready to transfer them to the Logo screen. Encourage them to write "building block" procedures to create squares, rectangles, stars, circles, triangles, and other shapes of any size. *(See box for sample procedures.)* Students then combine these procedures with other procedures to create the more intricate Logo designs.

Remind students that there are many possible solutions to creating the shapes with Logo, just as there are many ways to piece them together on paper. Note that each solution given for a design on the opposite page is only one of many possibilities.

When each team has completed the five projects, bring in a panel of judges — an art teacher, a math teacher, and a Logo teacher, for example — to judge team entries on a scale of one (lowest) to 10 (highest). Categories can include accuracy of overall design, quality of paper design and description, use of color, and quality of procedures.

Building Block
Procedures for Penturtlethon Designs

Students can create these simple variable procedures and use combinations of them along with other procedures to form the geometric patterns on the next page.

Square:
Procedure for a square of any size. Type SQUARE followed by one number.

```
TO SQUARE :SIZE
REPEAT 4 [FD :SIZE RT 90]
END
```

Rectangle:
Procedure for a rectangle of any size. Type RECTANGLE followed by two numbers.

```
TO RECTANGLE :SIDE1 :SIDE2
REPEAT 2 [FD :SIDE1 RT 90 FD
:SIDE2 RT 90]
END
```

Triangle:
Procedure for an equilateral triangle of any size. Type TRIANGLE followed by one number.

```
TO TRIANGLE :SIZE
REPEAT 3 [FD :SIZE RT 120]
END
```

Circle:
Procedure for a circle of any size. Type CIRCLE followed by one number.

```
TO CIRCLE :SIZE
REPEAT 36 [FD :SIZE RT 10]
END
```

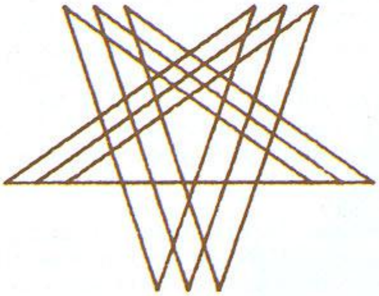
Star:
Procedure for a five-pointed star of any size. Type STAR followed by one number.

```
TO STAR :SIZE
REPEAT 5 [FD :SIZE RT 144]
END
```

PENTURTLETHON LOGO DESIGNS

Directions: Give students a copy of the following designs (cover up the solutions) and have them write procedures to create them.

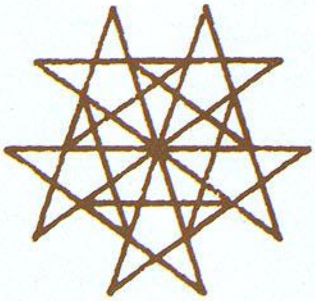
DESIGN #1



One possible solution:

```
TO STARS
REPEAT 3 [STAR 80 FD 8]
HT
END
```

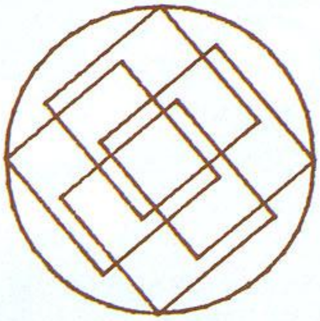
DESIGN #2



One possible solution:

```
TO MEDAL :SIZE
REPEAT 5 [STAR :SIZE RT 72]
HT
END
```

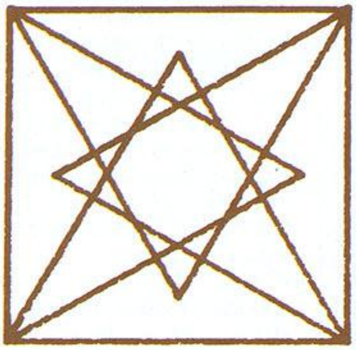
DESIGN #3



One possible solution:

```
TO CIRCLE.SQUARE :SIZE
REPEAT 4 [RT 45 SQUARE :SIZE
LT 45 REPEAT 9 [FD 6 RT 10]]
END
```

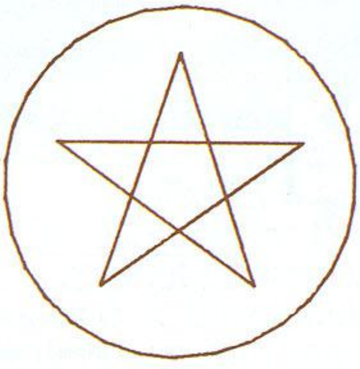
DESIGN #4



One possible solution:

```
TO SQUARE.STAR
REPEAT 4 [RT 30 TRIANGLE 60 LT 30 FD 60
RT 90]
HT
END
```

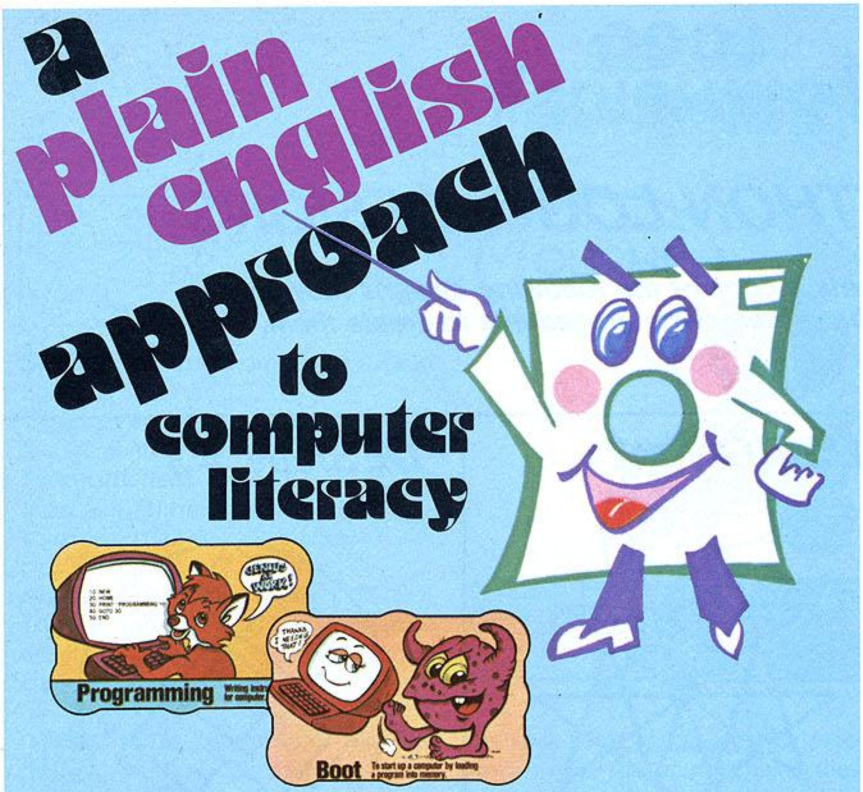
DESIGN #5



One possible solution:

```
TO CIRCLE.STAR
LT 52
CIRCLE 8
PU RT 72 FD 10 PD
STAR 70
HT
END
```

(continued)


a plain english approach to computer literacy
GENIUS AT WORK!
10 NEW
20 HOME
30 PRINT "PROGRAMMING"
40 GOTO 30
50 END
THANKS I NEEDED THAT!
Programming
Boot To start up a computer by loading a program into memory.

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CIRCLE 24 ON READER SERVICE CARD

OLYMPIC RESOURCES

The following list includes books, pamphlets, and software programs on the Olympics.

Books and Pamphlets

- The U.S. Olympic Committee is offering up to three free copies per school of a pamphlet called "The Olympic Games." The committee has also published a book titled *The Olympics: An Educational Opportunity*, in three versions for grades K to 6, 7 to 9, and 10 to 12 ($3.50 each, plus $1.50 postage, or $10 for all three, plus $3 postage). Contact Bob Paul, Special Assistant, U.S. Olympic Committee, 1750 E. Boulder St., Colorado Springs, CO 80909.
- The Los Angeles Olympic Organizing Committee is offering a free package of educational materials on the Olympics, including curriculum guides for elementary, junior high, and high school levels (specify which one) and a 50-page booklet titled *History of the Olympic Games.* Contact LAOOC, Youth Services Dept., Los Angeles, CA 90084.
- *The Complete Book of the Olympics*, by David Wallechinsky (1984; $10.95). Penquin Press, 40 W. 23rd St., New York, NY 10010.
- *The Summer Olympics*, by Caroline Arnold (1983; $8.90; grades 2–4). Franklin Watts, 387 Park Ave So., New York, NY 10016.
- *Victory 1984* (1984; $6.95; grade 4 and up) and *Gold Medal Games* (1984; $3.95; grades 1–3). The Learning Works, P.O. Box 6187, Santa Barbara, CA 93160.

Software Programs

- *Olympic Decathlon* (Apple II+/IIe; $29.95). Microsoft, 10700 Northrup Way, Bellevue, WA 98004.
- *Summer Games* (Atari 400/800 32K; Coleco Adam; Commodore 64; IBM PC and IBM PCjr versions available through IBM; $32). Epyx, 1043 Kiel Ct., Sunnyvale, CA 94089.
- *HES Games 84* (Commodore 64; $39.95). Human Engineering Software (HES), 150 N. Hill Dr., Suite 35, Brisbane, CA 94005. ■

Tom Lough is editor of the *National Logo Exchange*; ***Steve Tipps*** is assistant professor of education at University of Virginia; ***Rebecca Poplin*** teaches Logo at Jack Jouett Middle School; Charlottesville, Virginia.

A Special
Teaching and Computers Pull-Out

A+

SOFTWARE
SUPPLEMENT

More than seventy educational programs recommended by teachers.

Which educational programs deserve an A+ in your gradebook? We asked teachers who use computers to name the best software programs in math, language arts, science, social studies, problem solving, and a miscellaneous category. Their top choices are listed on the following pages, along with descriptions, prices, publishers, and other pertinent program info.

T&C's pull-out supplement also answers common questions teachers have about software and suggests criteria for evaluating programs. There's a special section on Logo programs and a list of publishers' addresses so you can order programs or get more information from different companies.

Pull out this supplement and let it serve as a handy reference on software that makes the grade!

(continued)

THREE QUESTIONS ABOUT SOFTWARE

If your knowledge about software is minimal, start with these basic questions and answers.

1. What is software?

Software is the set of instructions that tells a computer what to do. This set of instructions (also called a *program*) is usually recorded on an ordinary cassette tape, a floppy disk that looks like a miniature record, or a tiny cartridge that plugs into a slot in the computer. Machines respond to specific sets of instructions, so make sure the software you want is available for your computer.

2. What kinds of educational software are there?

That's a BIG question! There is such a variety of programs available that it is difficult to place them into specific categories. Usually, a program incorporates not one, but a combination of several instructional techniques. In general, you can divide software into three major groups: 1) programs that provide instruction to students, 2) programs that students use as tools, and 3) programs that teachers use as tools. Within the three groups there are many subgroups. Let's examine these subgroups.

Instructional

Drill and practice programs reinforce previously taught concepts by presenting problems, waiting for answers, and then telling whether the answers are right or wrong. These programs sometimes keep track of the number of correct and incorrect responses the program user makes.

Tutorials first instruct the student in some subject, then ask questions on the material taught, and finally, respond to the student's answers.

Simulations allow students to experience situations which otherwise would be difficult or impossible to duplicate in a classroom setting. For example, computer simulations allow students to reenact historic events or perform dangerous science experiments.

Educational games teach a concept or skill by using a game format containing a clear set of rules and playing objectives. There is usually a winner at the end.

Student Tools

Word processing programs help students write and manipulate text.

Database management programs teach students to organize information by turning the computer into an electronic filing system.

Graphics programs help students create all sorts of graphics — from bar graphs to pie charts to original designs.

Electronic spreadsheets help students practice math skills by turning the microcomputer into an automated ledger.

Teacher Tools

Authoring systems allow teachers to create computer assisted instruction by typing specific questions and answers into a fixed structure.

Authoring languages are simple programming languages, like PILOT (Programmed Inquiry Learning or Teaching), that allow teachers to create their own structure for computerized lessons.

Classroom Management Programs help teachers with testing and record keeping.

3. What is good software?

How can you tell if a program is educationally sound? Start with the techniques you use for evaluating other instructional materials. Check to see that the material in the program is content-accurate, appropriate for the grade level, interesting, free of bias, and accompanied by thorough and well-organized teacher's guides. Besides meeting these standard criteria, good software should:

- Have no bugs (no technical problems or errors).
- Provide clear instructions.
- Let the user control the program's speed and difficulty.
- Adapt to students' individual needs. If a student grasps the concepts being taught, the program should "branch" to a more difficult lesson. If a student is having difficulty with a particular objective, the program should provide additional instruction.
- Provide positive reinforcement and help kids understand wrong answers.
- Take advantage of the computer's distinct capabilities. Software should use the computer in a way that is better than or different from traditional ways of teaching. Look for programs that effectively use the color, sound, graphics, and interactive capabilities of computers.
- Allow for easy teacher modification. Teachers should be able to alter programs easily to fit students' individual needs. Modifications include adapting the pace of the program and the educational content.
- Stimulate creativity. Creative software encourages students to discover their own solutions to problems, rather than limiting them to yes-no or multiple choice responses. □

A + SOFTWARE LISTINGS

Teachers are very busy people. They don't have time to sift through the thousands of educational programs available to them in order to find the very best to buy. We at *Teaching and Computers* decided to make this job easier by publishing a list of quality programs tested and recommended by classroom teachers.

To produce such a list, we sent a survey to teachers across the country who are experienced software users and asked them to name what they considered to be A+, or top-notch, programs in the following categories: math, language arts, social studies, science, problem solving, and miscellaneous.

From their responses, we compiled a list of the most frequently recommended programs. Then we sent this list to 12 experts on educational software evaluation. They studied it and gave their seal of approval to the more than 70 programs that follow.

Undoubtedly, there are excellent programs that we did not mention. We advise you to use our list as a starting point for selecting good software, but to keep your eyes and ears open for other good programs.

We tried to include a variety of A+ programs for the most popular microcomputer brands. Our list, however, reflects a marketplace that offers more good software for some computer brands than others.

One note of caution: Information on prices and machine availability of the A+ software was given to us at press time by representatives of the companies that distribute the programs, but they are subject to change without notice. Also, before you purchase software, check with local distributors to see if they can offer you special educational discounts.

LANGUAGE ARTS

Bank Street Writer
Designed for young writers, this word processing package allows users to correct spelling and grammar, revise sentences, insert new ones, and move paragraphs.

Apple II+/IIe; Atari (48K d); Commodore 64 (d). $95. Grades 4–12. Scholastic Inc.

Software Listings Key:

d = disk
cs = cassette
cg = cartridge

For companies' addresses, see back page.

Crossword Magic
This program automatically generates crossword puzzles from clues and words supplied by the user. Provides drill on word recognition, vocabulary, and spelling.

Apple II/II+/IIe; Atari (40K d). $49.95. Grades K–12. L & S Computerware.

Elementary Volume 7 — Prereading/Counting
Teaches prereading and basic arithmetic skills. Includes "Caterpillar," "Train," "A is for Apple," "Pictures," "Words," "Shapes," "Smiles," "Wuzzles," "Spaceship."

Apple II+/IIe. $46. Preschool–Grade 2. MECC.

The Hinky-Pinky Game
Students try to guess pairs of rhyming words to fit definitions. The vocabulary game develops spelling and rhyming skills.

Apple II+/IIe. $30. Grades 4–10. The 22nd Avenue Workshop.

Homonyms in Context
A drill and practice program in which students distinguish between homonyms by reading them in the context of sentences.

Apple II+/IIe; TRS-80 I/III (cs, d). $69. Grades 4–6. Random House School Division.

M-ss-ng L-nks: Young People's Literature
Students reconstruct passages from well-known children's literature by filling in missing letters to words. Provides practice in spelling, reading, and grammar.

Apple II+/IIe; Atari (48K d); TRS-80 III/4 (d); IBM PC/PCjr. $49. Grades 3–6. Sunburst Communications.

Prereading
Six games teach prereading skills. Includes "Caterpillar," "Train," "First Letter," "Pictures," "Words," and "Shapes."

Atari (48K d). $44. Preschool–Grade 2. MECC.

Play With Language
Three games help young children with word recognition, vocabulary development, and reading comprehension.

Color Computer (32K d). $99. Grades 1–2. Radio Shack/Tandy Corp.

Quill
Develops communication skills through writing. The program guides students in planning, writing, and editing articles.

Apple II+/IIe. $150. Grades 3–9. D.C. Heath and Co.

Story Maker
Students exercise language skills by interacting with prewritten stories or writing their own interactive stories.

Apple II/II+/IIe. $30. Grades 2–5. Bolt, Beranek, Newman.

Story Tree
Children can write their own interactive adventure stories or follow sample adventures included on the disk.

Apple II+/IIe. $59.95. Grades 4–8. Scholastic Inc.

Tutorial Comprehension Series
Five sets of four disks each provide tutorial and practice on reading comprehension skills. Programs include *Main Idea, Details, Sequence, Inference,* and *Critical Reading.*

Apple II+/IIe; TRS-80 III (d). $255 each set; $995 for series. Grades 2–6. Random House School Division.

(continued)

Illustrations by Nina Winters

A+ SOFTWARE LISTINGS
(continued)

MATH

Bumble Games
Children learn fundamental math skills and create computer graphics with six easy-to-use games.

Apple II+/IIe; Atari (48K d); IBM PC/PCjr. $39.95. Preschool–Grade 4. The Learning Co. Follett Quality Courseware also sells the above versions as well as a Color Computer version. Price may vary a bit.

Bumble Plot
In this advanced version of *Bumble Games,* students create computer graphics by plotting positive and negative numbers.

Apple II+/IIe; IBM PC/PCjr. $39.95. Grades 2–8. The Learning Co. Follett Quality Courseware also sells the above versions as well as a Color Computer version. Price may vary a bit.

Early Games: Fraction Factory
These games introduce students to fractions and provide practice in adding, multiplying, and subtracting them.

Apple II+/IIe; Atari (16K cs, 24K d); Commodore 64/VIC-20 (d, cs); IBM PC; TRS-80 I/III (d). $29.95. Grades 2–7. Counterpoint Software, Inc.

Early Games: Piece of Cake
Children visit a bakery where they learn to add, subract, multiply, and divide by counting cakes as they are baked and sold.

Apple II+/IIe; Atari (16K cs, 24K d); Commodore 64/VIC-20 (d, cs); TRS-80 I/III (d), Color Computer (d, cs); IBM PC. $29.95. Grades 1–6. Counterpoint Software, Inc.

Elementary Math Logic
Four games teach logic skills. Includes "Bagels," "Hurkle," "Number," and "Taxman."

Commodore 64 (d). $44. Grades 1–6. MECC.

Elementary Volume 1 — Mathematics
Eleven logic games and drills on math and the metric system. Includes "Hurkle," "Bagels," "Taxman," "Metric Length," "Metric 21," "Number," "Change," "Tens," "Metric Estimates," "Round," and "Speed Drill."

Apple II+/IIe. $45. Grades 3–5. MECC.

Software Listings Key:

d = disk
cs = cassette
cg = cartridge

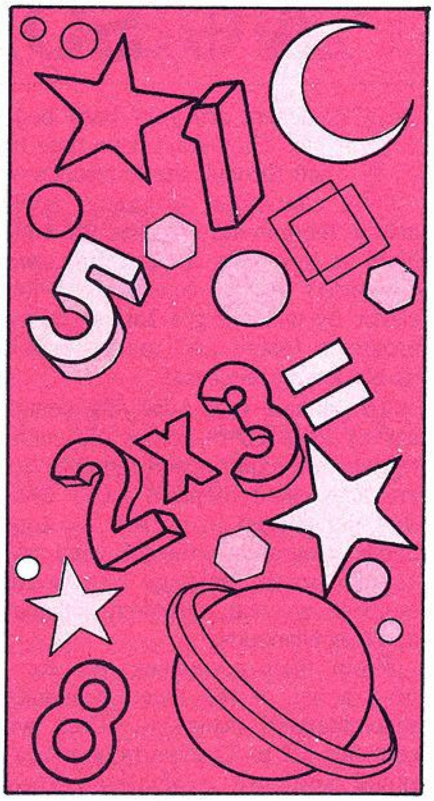
For companies' addresses, see back page.

Galaxy Math Facts Game
Students travel through space collecting energy and ammunition by correctly answering basic math problems. Set of six programs.

Apple II+/IIe; Atari (48K d); TRS-80 I (cs), III (d, cs); IBM PC. $49.50 each, $174 for complete set. Grades 2–8. Random House School Division.

The Math Connection
Three challenging games drill the four basic math operations.

TRS-80 I/III/4 (16K cs, 32K d). $49. Grades 3–8. Sunburst Communications.



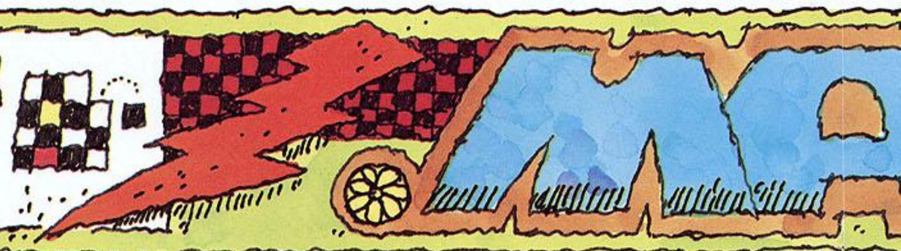
List of Logo Programs

Just about every teacher we surveyed recommended a Logo program. Logo is an easy-to-learn programming language that turns the computer into a tool for learning and discovery. Logo helps kids to develop logical thinking skills, create and test original theories, and learn computer programming.

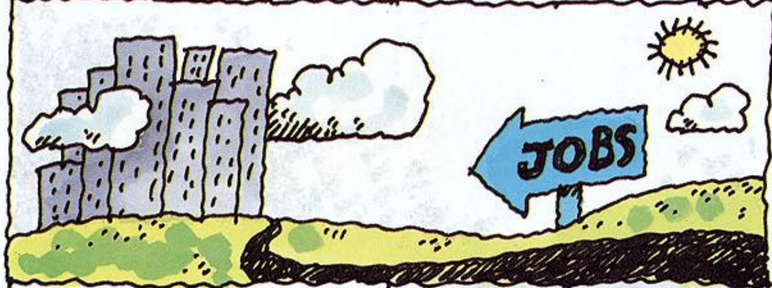
Logo is available for most major computers. Options, such as sound, color, sprites, and documentation, vary from package to package. Following is a list of Logo packages available for major microcomputers.

Apple Logo
Apple II/II+/IIe. $175. Apple Computer, Inc.
Atari Logo
Atari (48K cg). $99. Atari, Inc.
Commodore Logo
Commodore 64 (d). $59.95. Commodore Computers.
Corvus Logo
Apple II/II+/IIe; Franklin. $100. Unicom.
CyberLogo Turtle
Apple II/II+/IIe/III; Franklin. $79.95. Cybertronics, Inc.
DR Logo
IBM PC/PCjr. $149.95. Digital Research.
IBM Logo
IBM PC/PCjr. $175. Digital Research.
Krell Logo
Apple II+/IIe; Franklin. $89.95. Krell Software.
Ladybug Logo
IBM PC/PCjr. $10 duplication fee. Young People's Logo Association.
PC Logo
IBM PC/PCjr; Eagle PC; Compaq. $149.95. Harvard Associates.
Socrates Logo
IBM PC/PCjr. Available in fall. Krell Software.
Sprite Logo
Apple II/II+/IIe. $299. Logo Computer Systems.
Terrapin Logo
Apple II/II+/IIe; Commodore 64 (d). $149.95 for Apple; $49.95 for Commodore. Terrapin.
TRS-80 Color Logo
Color Computer (d, cg). $99 (d); $49.95 (cg). Radio Shack.
Waterloo Logo
IBM PC. $125. Waterloo Microsystems.

ELECTRONIC CALENDAR



Sunday | Monday | Tuesday | Wednes

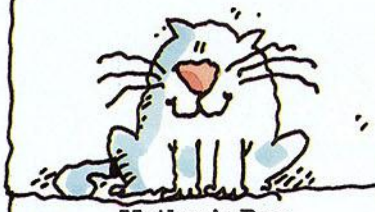


1 **May Day**

2 9 1 2 7 6
3 3 2 7 3 8 3 7
3 4

2 **Joke Day**
Q: Why do
puters tak
crunch nu
A: Because
in itty-bitt

6 **National Pet Week**



7

8 **Word Day: Salary**
A **salary** is a fixed amount of money a worker earns for a year.

9 **Word Day:**
A **wage** is
earned by t
by the day.
hours wage
work, the m
ey they ma

TIC...
TIC...
TIC...
TIC.. TIC...
TIC..

13 **Mother's Day**

I Love you, mom!

14 **Future Fact**
By 1990, half of the workers in the United States will use computer terminals.

15

16

YOU'RE HIRED!
GOODY!

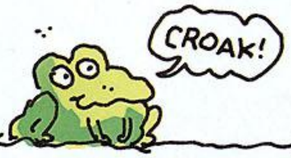
20 **Joke Day**
Q: What's a computer's favorite TV show?
A: "Chips."

21

22

23 **Try This!**
Look in ma
and newspa
pictures an
of people w
with compu
these to ma
reer Center
board.

27



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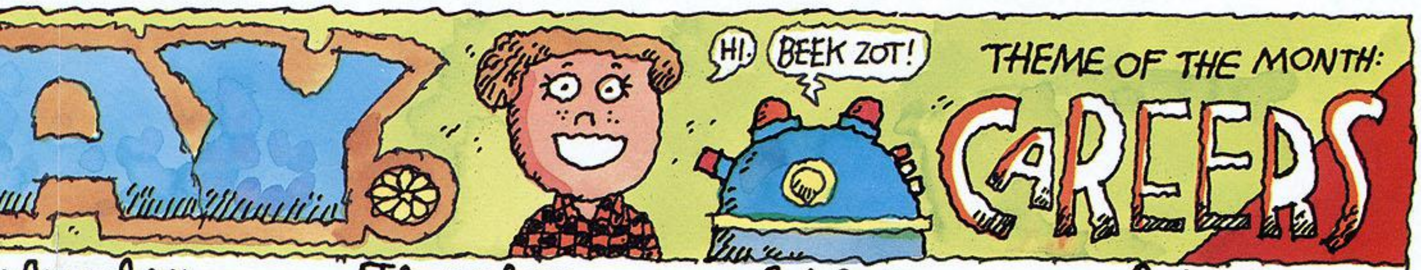
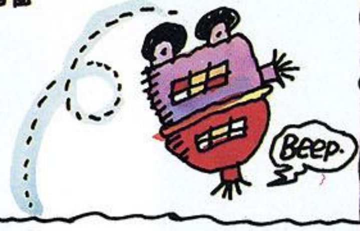
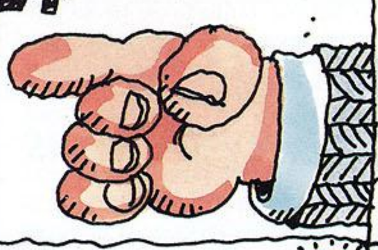
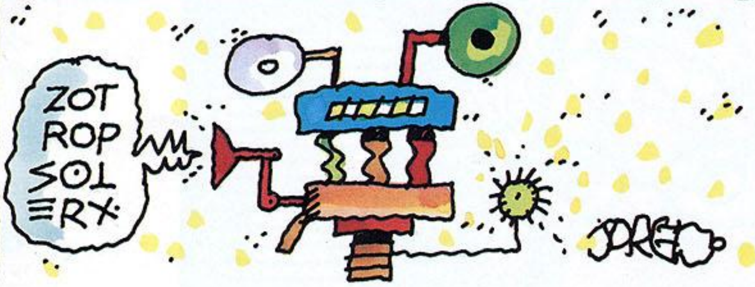
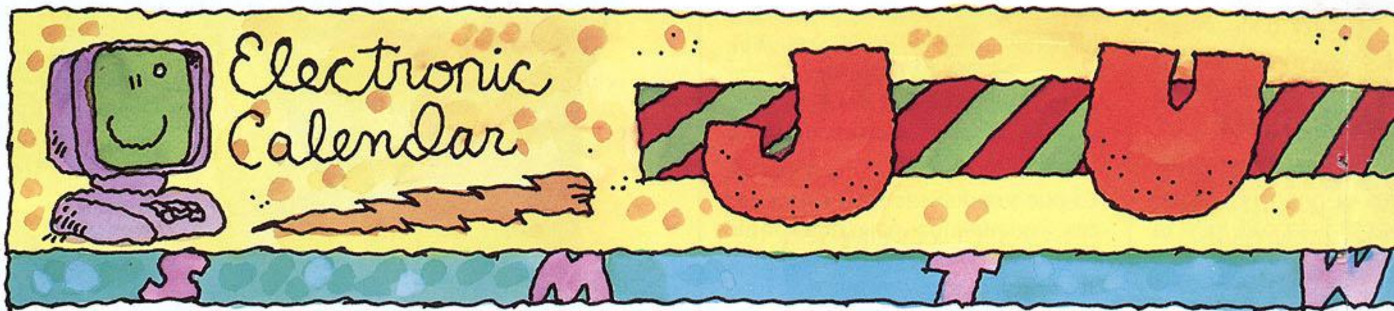
29 **Quick Quiz**
How will the careers on the poster change in the next 10 years? Which ones will disappear? Which will be more important?

30 **Memorial**



ednesday	Thursday	friday	Saturday
Joke Day **Q:** Why do some computers take so long to crunch numbers? **A:** Because they chew n itty-bitty bytes.	**3** **Try This!** Read the want ads on the poster. Create your own want ad section with other jobs in which people use computers.	**4** 	**5** **Kentucky Derby**
Vord Day: Wage **wage** is money arned by the hour or y the day. The more ours wage earners ork, the more mony they make. c..	**10** Please hire me.	**11**  	**12** **Joke Day** **Q:** Why did the program get dizzy? **A:** It made too many loops.
	17 **Try This!** Pick a job on the poster. Make up a resume of an ideal candidate for the job.	**18** 	**19**
y This! ok in magazines d newspapers for ctures and stories people working th computers. Use ese to make a Caer Center bulletin ard.	**24** 	**25** **Quick Quiz** Order these education degrees, from lowest to highest: Doctorate High school diploma Master's Bachelor's	**26** **Joke Day** **Q:** What gives a computer Saturday Night Fever? **A:** A swinging diskotheque.
emorial Day 	**31** 	 	



3

4 **Word Day: Computer Revolution**

Revolution means sudden change. **Computer Revolution** means sudden change brought on by computers.

5 **Try This!**

One change that the Computer Revolution caused is the creation of new jobs. Name five jobs that didn't exist before we had computers.

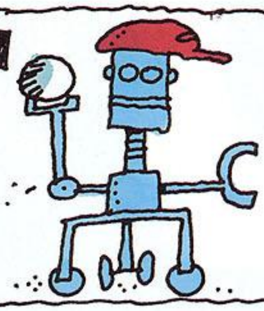
6

10 **Joke Day**

Q: How did the robot pitcher do in the first-ever computer World Series?

A: It modem down.

11



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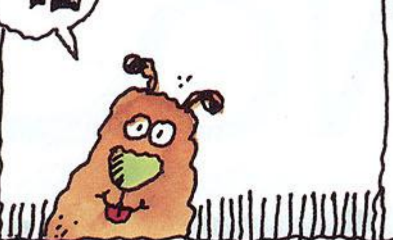
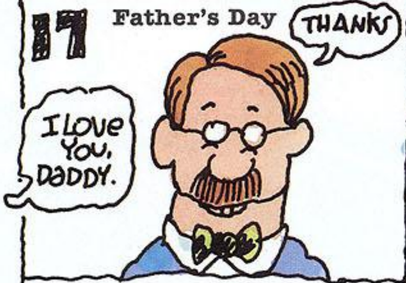


13 **Try This!**

Interview a
neighbor w
Does he or
computers
How? Wha
training or
does the jo

17 **Father's Day**



18

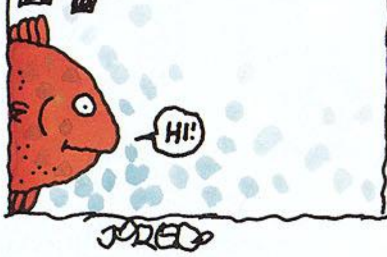
HAPPY JUNE 18TH.

19 **Blaise Pascal's Birthday, 1623**

Pascal was a mathematician. He invented a machine for adding and subtracting to help his father figure taxes faster.

20

24



25 **Try This!**

Have a Computer Career Day. On this day, invite people who use computers at work to talk about their jobs.

26

27

NE

THEME OF THE MONTH:

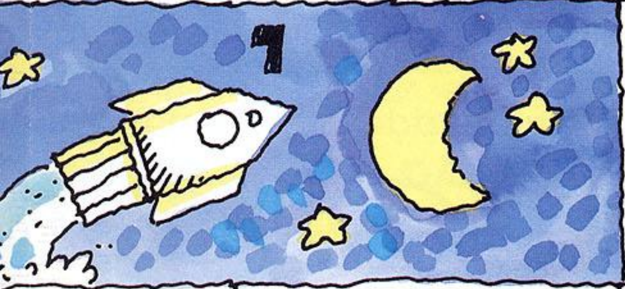
CAREERS

W TH F S

1 **Teacher "Thank You" Week**

THANK YOU!
THANKS.
THANKS.

2 **Joke Day**
Q: How did the computer work its way through college?
A: It was a hall "monitor."



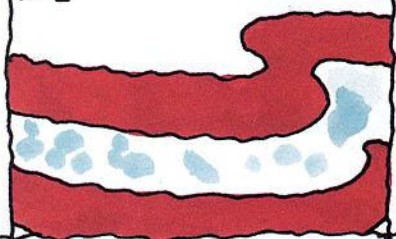
7

8 **Future Fact**
By 1990, at least two million people will have careers that did not exist before computers.

9

This!
erview a parent or
ghbor who works.
s he or she use
nputers at work?
w? What kind of
ning or education
s the job require?

14 **Flag Day**



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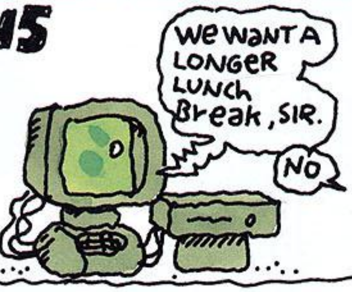
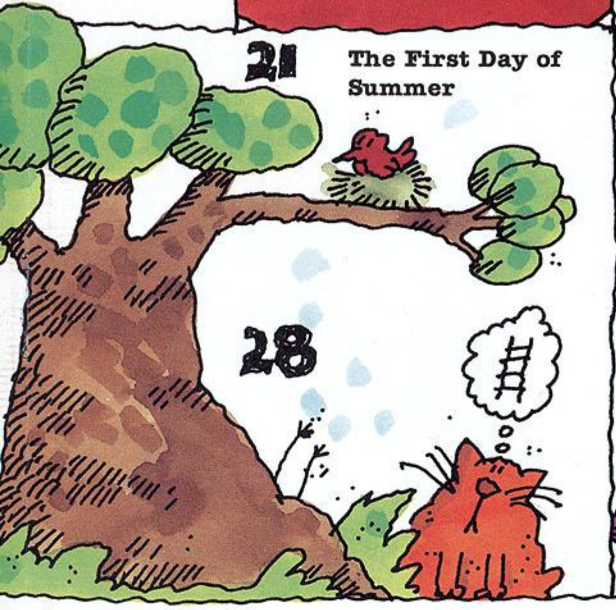

WE WANT A LONGER LUNCH BREAK, SIR.
NO

16



21 **The First Day of Summer**

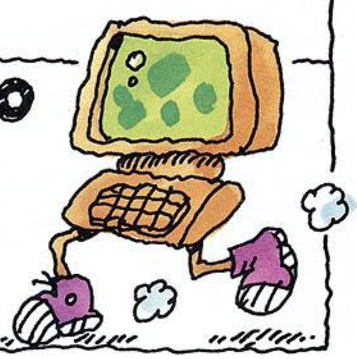
22

23 **Joke Day**
Q: Why do some computers wear sneakers?
A: So they can RUN faster.

28

29 **Joke Day**
Q: What do computers do best at the Olympics?
A: Boot the disk-us.

30



COMP
HELP•WA

Most of the jobs in the want ac
newspaper. A few are t
Can you tell the "real" ac

Help Wanted 2600

ASTRONAUT

Do you have a master's degree or doctorate in engineering, physics, or mathematics? Have you flown a jet for at least 1,000 hours? If so, you could be an astronaut! Apply now at Cape Canaveral in Florida. You must be able to operate computer-controlled equipment. Salary: varies with assignment and experience.

CASHIER

The We-Sell-Anything supermarket chain seeks friendly, hard workers to operate computerized cash registers. High school diploma recommended. Wage: $5 to $9 per hour.

Help Wanted

COMPUTER O

Night owls, re

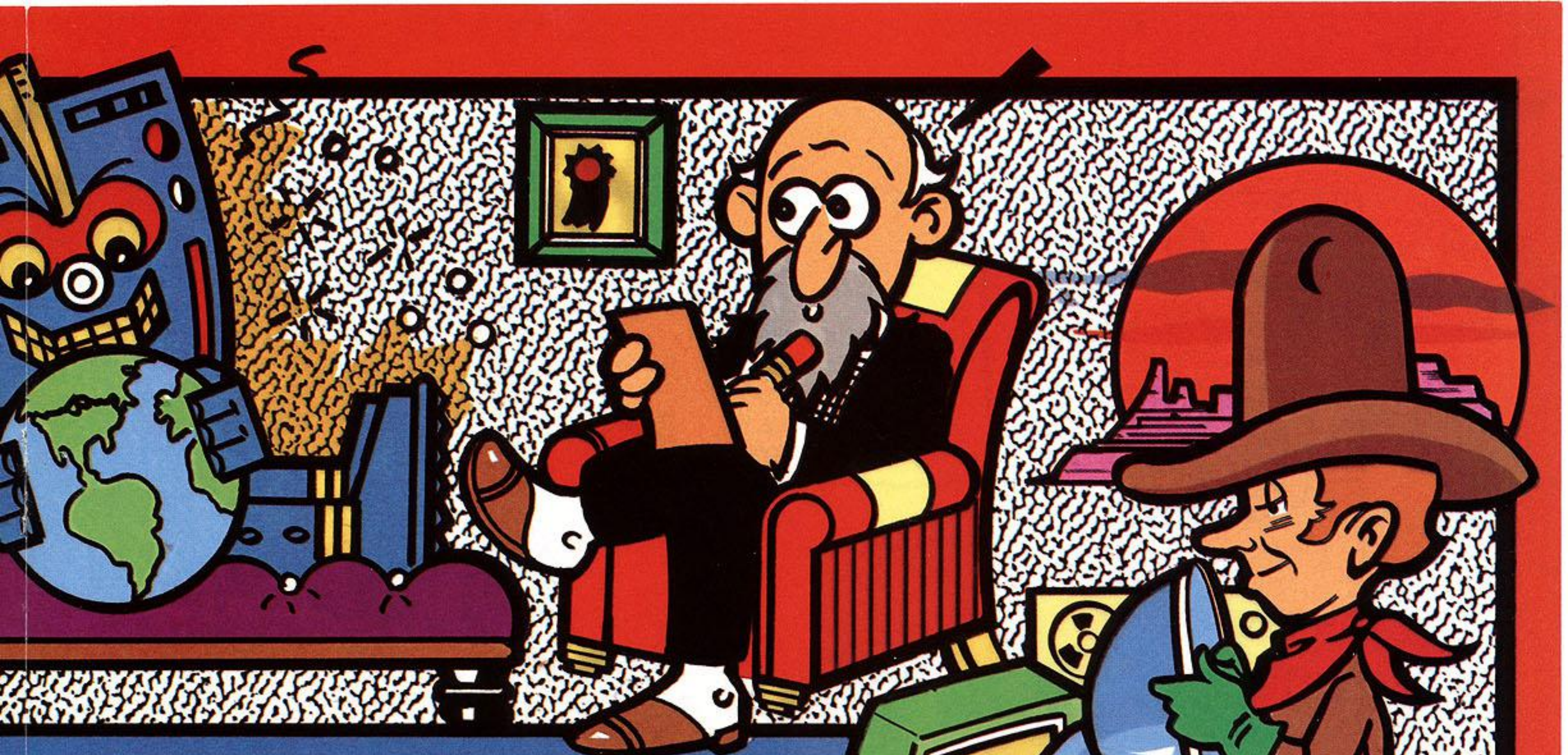
Large company seek
operator for night sh
clude running softwa
and helping workers
ers. Will train on c
system. Typing skills
in data processing re
Salary: $10,400 to st

DISK DRI

Driver needed to mo
Coaching experience
sample pep talks to
Inc. Wage: $5 per dis

SALESPE

Micro Bonanza Com



PUTER

WANTED

t ads below could appear in a
re too silly to be true.
' ads from the silly ads?

ted 2600

R OPERATOR

vls, read on!

seeks a computer ght shift. Duties in- software programs rkers use comput- on our computer g skills and training sing recommended.) to start.

DRIVER

to motivate disks. ience helpful. Send ks to Disk-O-Pep, per disk.

PERSON

a Computer Store ple. Must be famil-

Help Wanted 2600

BANK TELLER

Good with figures?

Apply now at You-Can-Trust-Us National Bank. We will train. Duties include using computers to record deposits and withdrawals and balance the daily account. High school diploma and clerical skills recommended. Salary: $130 to $180 per week.

ELEMENTARY SCHOOL TEACHER

We welcome teachers with at least five years experience in major subject areas. Must know how to buy and run software programs. BASIC or Logo programming a plus. Salary: $17,000.

cash registers. High school diploma recommended. Wage: $5 to $9 per hour.

DOCTOR

Cure-All General Hospital has positions open for doctors. Ability to use computers to treat patients and keep records is helpful, but we will train. Average salary: $74,500.

COMPUTER PROGRAMMER

Programmers needed to create software for growing toy factory. Bachelor's degree in computer science or engineering required. Salary: $17,200 to start.

METEOROLOGIST

Meteorologist needed by small television station. Duties include using a computer to predict weather and make weather maps. Master's degree in meteorology required. Background in physics, mathematics, or chemistry helpful. Salary: $15,200 to $18,600.

HOUSTON OILER

Oiler needed in Houston area to take care of rusty computer parts. Must supply own can of oil and be willing to travel. Wage: $1 per squeak.

SALESPE

Micro Bonanza Con
seeks salespeople. M
iar with many types
programs and hard
High school diploma
ary: $12,600 plus s
sion on sales.

PSYCHOL

Psychologist with e
computer personaliti
treat HAL, the m
computer system or
has a tendency to t
world. Salary: negoti

COMPUTER TEC

"Handy at fixing

Technicians are nee
and maintain comput
used in science e
Thorough knowledge
parts and one to t
training in electron
Salary: $12,600 to $

REPOR

"Here's a sc

The *Big City Daily E*
paper seeks experie
ers to cover local ne
able to operate a w
and type 60 wpm. B
gree required. Sala
week.

REPAIR KIT
NO RAIN TODAY
ROBERT DALE ©

PERSON

a Computer Store
ple. Must be famil-
types of software
hardware parts.
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OLOGIST

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R TECHNICIAN

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to $20,000.

ORTER

a scoop!"

Daily Express news-
xperienced report-
cal news. Must be
a word processor
om. Bachelor's de-
Salary: $400 per

least five years experience in major subject areas. Must know how to buy and run software programs. BASIC or Logo programming a plus. Salary: $17,000.

POLICE OFFICER

Have you worked in a crime lab? We need police officers with three to five years experience, who can use computers for analyzing chemicals, fingerprints, and guns. High school diploma and training in police science required. Salary: $20,500 to $25,800.

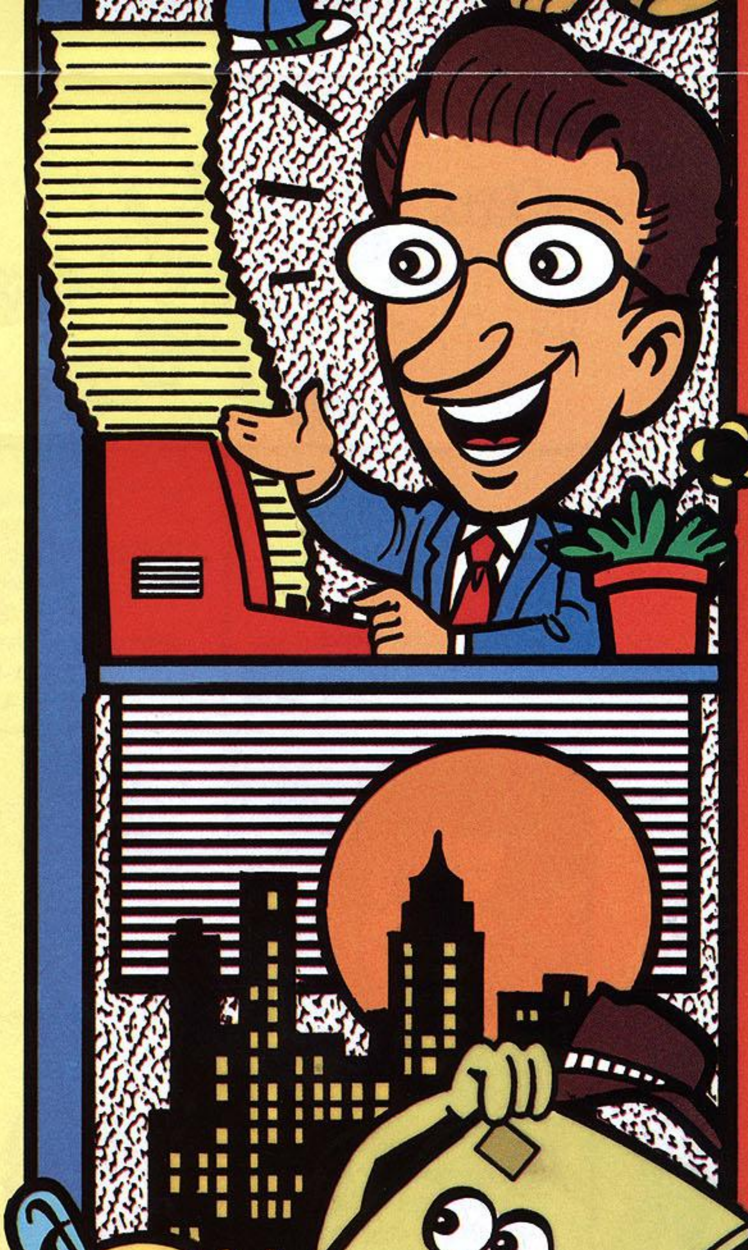
SYSTEMS ANALYST

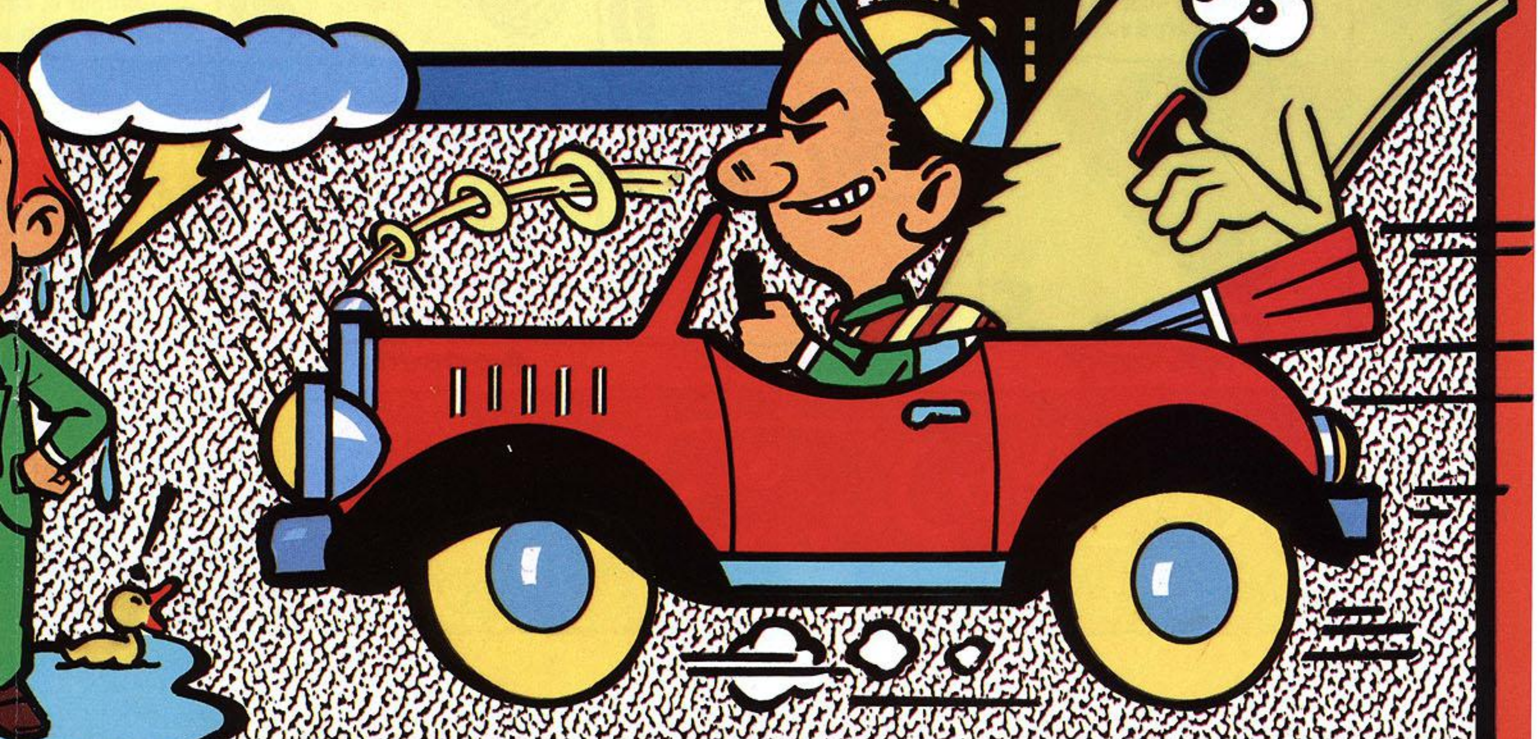
"We need order!"

Systems analyst needed to make our paperwork neat, easy to read, and clean — in other words, computerized! Will work with programmers to put together a computer system just right for our company. Degree in accounting, computer science, or business required. Salary: $19,700 to start.

DATA ENTRY CLERK

The Slumber Hotel seeks data entry clerk. Duties include typing reservations and customer information into a computer. Computer keyboard and typing skills needed. High school diploma recommended. Wage: $6 to $10 per hour.





Metric and Problem Solving

Drills on the metric system and other math concepts. Contains "Metric Estimate," "Metric Length," "Metric 21," "Bagels," "Hurkle," "Number," and "Taxman."

Atari (48K d). $46. Grades 2–6. MECC.

Milliken Math Sequences

Package of 12 disks provides drill and practice on math concepts. Some programs have as many as 60 difficulty levels.

Apple II+/IIe; Atari (40K d). $40 each, $450 for 12 disks. Grades K–8. Milliken Publishing Co.

SemCalc: The Word Problem Solver

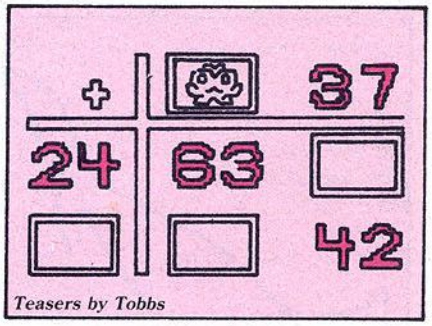
A mini-spreadsheet that focuses students' attention on the words in word problems rather than the numbers.

Apple II+/IIe; Atari (48K d); TRS-80 III (d). $95. Grades 6–12. Sunburst Communications.

Survival Math

Four simulations require students to solve everyday problems using their knowledge of math. Simulations include running a hot dog stand and planning a vacation.

Apple II+/IIe; Atari (16K d); Commodore 64 (d); TRS-80 I (cs), III/4 (d, cs). $50. Grades 6–12. Sunburst Communications.



Teasers by Tobbs

Teasers by Tobbs

Students identify missing factors, products, addends, and sums on a puzzle grid. One to four students play at six levels of difficulty.

Apple II+/IIe; Atari (16K d); TRS-80 I/III/4 (d), Color Computer (cs). $49 d, $39 cs. Grade 4–12. Sunburst Communications.

MISCELLANEOUS

Delta Drawing

Introduces students to programming concepts by turning the computer into a drawing tool. Teaches math concepts and artistic composition.

Apple II+/IIe; Atari (48K cg). $49.95 for Apple; $39.95 for Atari. Grades K–12. Spinnaker Software Corp.

Early Games for Young Children

Nine games allow preschoolers to match numbers, shapes, and letters, add and subtract, write their names, and draw.

Apple II+/IIe; Atari (24K d, 16K cs); Commodore 64/VIC 20 (d, cs); TRS-80 I (32K d), I/III (16K cs), Color Computer (16K d, cs); IBM PC. $29.95. Preschool–Grade 2. Counterpoint Software, Inc.

Early Games Matchmaker

Children match colors and shapes and group sizes and shapes in four colorful games.

Apple II+/IIe; Atari (24K d, 16K cs); Commodore 64/VIC-20 (d, cs); TRS-80 I/III (16K d), Color Computer (16K d, cs); IBM PC. $29.95. Preschool–Grade 2. Counterpoint Software, Inc.

Early Games: Music

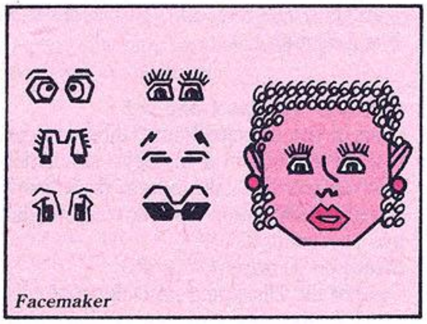
Eight interactive games that introduce children to the piano keyboard and basic music notation.

Apple II+/IIe; Atari (24K d, 16K cs); Commodore 64/VIC-20 (d, cs); TRS-80 I/III (16K d), Color Computer (16K d, cs); IBM PC. $29.95. Grades K–7. Counterpoint Software, Inc.

Facemaker

Children build and animate faces by selecting features from a menu. Exercises memory, concentration, and keyboard skills.

Apple II+/IIe; Atari (48K d, cg); Commodore 64 (d, cg); IBM PC/PCjr. $34.95. Grades K–4. Spinnaker Software Corp.



Facemaker

The Game Show

Similar to the TV game show "Password," this 16-program disk features vocabulary quizzes in a variety of subject areas. Teachers can create original quizzes.

Apple II/II+/IIe; Commodore 64 (d); IBM PC/PCjr. $39.95 for Apple and IBM; $34.95 for Commodore. Grades 2–12. Advanced Ideas.

Juggles' Rainbow

Juggles the clown teaches children how to count, match colors, recognize opposites and shapes, and understand spatial concepts.

Apple II+/IIe; Atari (48K d); Commodore 64 (d); IBM PC. $29.95. Preschool–Grade 1. The Learning Co. Follett Quality Courseware also sells the above versions as well as a Color Computer version. Price may vary a bit.

MasterType

By typing words, players shoot down missiles attempting to invade their planet. Includes 17 lessons and an authoring system for the teacher.

Apple II+/IIe; Atari (32K d, 16K cg); Commodore 64 (d, cg); IBM PC. $39.95 for Apple, Atari, and Commodore; $49.95 for IBM. Grades K–12. Scarborough Systems, Inc.

Micro Illustrator

Lets you create colorful graphic designs by pressing your finger or a stylus on the surface of a touch tablet called the Koala Pad.

Apple II+/IIe; Commodore 64 (d). $125. Grades K–12. Koala Technologies, Corp.

Microzine

An interactive "magazine" of games, stories, puzzles, and computer tools. Published bimonthly.

Apple II+/IIe. $39.95 per issue; $149 for six-issue subscription. Grades 5–8. Scholastic Inc.

Songwriter

Allows users to compose, edit, and save music. Teaches problem-solving skills and the mathematics of fractions.

Apple II+/IIe; Atari (48K d); Commodore 64 (d); IBM PC/PCjr. $39.95 for Apple, Atari, and Commodore; $49.95 for IBM. Grades 2–12. Scarborough Systems, Inc.

Square Pairs

Players uncover and try to match squares on a game board. An authoring system allows users to create games on any topic.

Apple II+/IIe; Atari (32K d, 16K cs); Commodore 64 (d)/VIC-20 (cs); TI 99/4A (cs). $19.95. Grades 3–6. Scholastic Inc.

(continued)

A+ SOFTWARE LISTINGS
(continued)

PROBLEM SOLVING

The Factory: Strategies in Problem Solving
Students set up a simulated machine assembly line to create and duplicate "products." Develops inductive thinking and visual discrimination skills.

Apple II+/IIe; Atari (16K d); Commodore 64 (d); TRS-80 III/Color Computer (32K d). $49. Grades 4–12. Sunburst Communications.

Gertrude's Puzzles
A continuation of *Gertrude's Secrets*. Children develop abstract thinking skills by solving complex logic puzzles.

Apple II+/IIe. $44.95. Grades 2–8. The Learning Co.

Gertrude's Secrets
Students form color and shape patterns with puzzle pieces. Develops deductive reasoning and logical thinking.

Apple II+/IIe. $44.95. Grades K–4. The Learning Co.

The Incredible Laboratory: Strategies in Problem Solving
As laboratory scientists, students mix chemicals in a beaker to create a variety of monsters. Based on what kind of monster they produce, students determine the properties of the chemicals they mixed.

Apple II+/IIe; Atari (48K d). $49. Grades 4–12. Sunburst Communications.

In Search of the Most Amazing Thing
In this interactive adventure game, players use a variety of skills, including note taking and mapmaking, to find The Most Amazing Thing.

Apple II+/IIe; Atari (48K d); Commodore 64 (d); IBM PC. $39.95. Grades 4–12. Spinnaker Software Corp.

Memory: The First Step in Problem Solving
Ten programs reinforce problem-solving skills. The games and tests provide practice in remembering and following directions.

Apple II+/IIe; IBM PC. $150 for 4-disk package A; $190 for 6-disk package B; $250 for 10-disk package C; $49 for Memory Castle, *individual program. Grades K–12. Sunburst Communications.*

Moptown Hotel
A sequel to *Moptown Parade* for older children. Students use analogies and problem-solving skills in seven challenging games.

Software Listings Key:

d = disk
cs = cassette
cg = cartridge

For companies' addresses, see back page.

Apple II+/IIe; Atari (48K d); IBM PC/PCjr. $39.95. Grades 4–12. The Learning Co. Follett Quality Courseware also sells the above versions as well as a Color Computer version. Price may vary a bit.

Moptown Parade
Children learn thinking and problem-solving skills by strategically arranging colorful characters in various activities.

Apple II+/IIe; Atari (48K d); IBM PC/PCjr. $39.95. Grades 1–5. The Learning Co. Follett Quality Courseware also sells the above versions as well as a Color Computer version. Price may vary a bit.

The Pond: Explorations in Problem Solving
Players identify a pattern of lily pads to help a frog navigate a pond. Teaches patterns, sequence, experimentation, and logic.

Apple II+/IIe; Atari (32K d); Commodore 64 (d); Color Computer (32K d); IBM PC. $49. Grades 2–12. Sunburst Communications.

Rocky's Boots
Players construct and play games with simulated machines made of wires and sensors. Teaches logic skills and basic computer circuitry.

Apple II/II+/IIe. $49.95. Grades 4–12. The Learning Co.

Snooper Troops Case #1
Case of the Granite Point Ghost. As private detectives in a mystery simulation, children learn to take notes, draw maps, classify information and develop deductive reasoning skills.

Snooper Troops Case #2
Case of the Disappearing Dolphin. Another simulation in a series of interactive mysteries. Players detect motives and criminals.

Apple II+/IIe; Atari (48K d); Commodore 64 (d); IBM PC. $49.95 each for Apple and IBM; $44.95 each for Atari; $39.95 each for Commodore. Grades 4–12. Spinnaker Software Corp.

Turtle Tracks
Kids learn programming skills by manipulating a turtle using simple English commands. An introduction to both BASIC and Logo.

Apple II+/IIe; Atari (32K d, cs); Commodore 64 (d)/VIC-20 (cs); IBM PC; TI 99/4A (cs). $39.95 for Apple, IBM; $29.95 for Commodore 64, Atari (d); $19.95 for VIC-20, Atari, TI (cs). Grades 4–9. Scholastic Inc.

SCIENCE

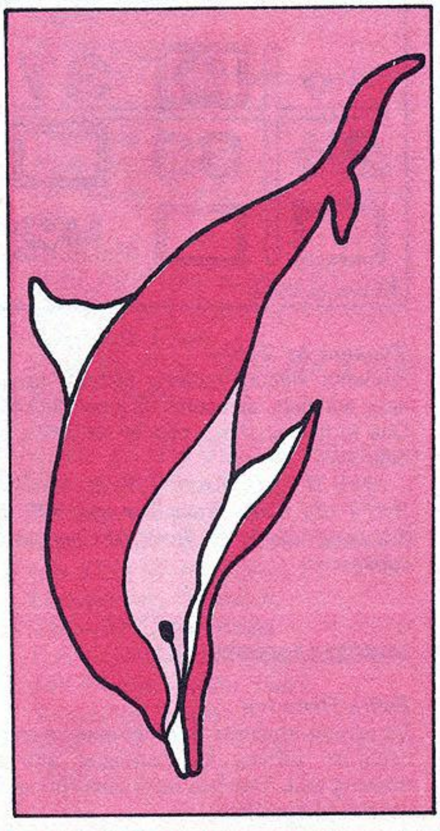
Elementary Biology
Students learn about the food chain process and the circulatory system. Includes "Circulation," "Odell Lake," and "Odell Woods."

Atari (48K d). $48. Grades 1–9. MECC.

Elementary Volume 4—Math/ Science
Simulations, drills, and tutorials for math and science classes. Includes "Odell Lake," "Odell Woods," "Estimate," "Math Game," "Solar Distance," and "URSA."

Apple II+/IIe. $49. Grades 2–6. MECC.

Experiments in Human Physiology
This software turns the computer into a laboratory instrument. Students measure



their respiration rates, heart rates, skin temperatures, and response times.

Apple II+/IIe. $249. Grades 6–12. Human Relations Media.

The Human Body: An Overview

Eight lessons introduce the basic human body systems (muscular, digestive, respiratory, skeletal, circulatory, and nervous).

Apple II+/IIe; Commodore 64/PET (16K d). $90. Grades 4–5. BrainBank, Inc.

Search Series:
Archeology Search

A simulation in which students organize the excavation of a historic site and formulate theories about the people who once lived there.

Energy Search

Students simulate managing an energy factory and searching for new sources of energy.

Geology Search

Students learn about rocks, fossils, and underground structures as they simulate an oil exploration.

Apple II+/IIe; TRS-80 III/4 (32K d). $180 each. Grades 5–9. McGraw-Hill Book Co.

The Skeletal System

Explores the parts and functions of the human skeleton. Includes "A Bone to Pick," "Major Skeletal Bones," "Joints," and "Ligaments and Cartilage."

Apple II+/IIe; Commodore 64/PET (16K d). $70. Grades 4–5. BrainBank, Inc.

Spotlight

Games teach about light reflection and the properties of angles. Includes "Reflect," "Spotlight," "Hot Stuff," and "Boxed In."

Apple II+/IIe. $50. Grades 3–8. Children's Television Workshop.

What's In Your Lunch

Analyzes and graphically represents the nutritional value of a student's lunch.

Apple II+; Atari (32K d, 16K cs); Commodore PET (8K cs, 16K d). $24.95. Grades 1–8. Math and Computer Education Project.

SOCIAL STUDIES

Elementary Volume 6 — Social Studies

Five simulations reinforce economics, history, and geography lessons. Includes "Furs," "Nomad," "Oregon," "Sumer," and "Voyageur."

Apple II+/IIe. $49. Grades 3–8. MECC.

Elementary Volume 3 — Social Studies

Seven simulations teach history, geography, and economics. Includes "Civil," "Sell Apples," "Sell Lemonade," "Sell Bicycles," "Sell Plants," "States," and "States 2."

Apple II+/IIe. $48. Grades 3–8. MECC.

Expeditions

Three simulations for history or social studies classes. Contains "Fur Trade," "Voyageurs," and "Oregon."

Atari (48K d). $49. Grades 5–9. MECC.

Lincoln's Decisions

Given the choices that Abraham Lincoln faced, students attempt to duplicate his decisions in this simulation.

Apple II+/IIe; Commodore 64 (d); TRS-80 III/4 (32K d). $59. Grades 5–12. Educational Activities, Inc.

The Market Place

Four business simulations teach about the economic marketplace. Contains "Sell Apples," "Sell Plants," "Sell Lemonade," and "Sell Bicycles."

Atari (48K d). $46. Grades 3–8. MECC.

Software Listings Key:

d = disk
cs = cassette
cg = cartridge

For companies' addresses, see back page.

Search Series:
Geography Search

Students learn cooperation, mapping and navigation skills, record keeping, and strategy planning as they simulate a voyage to the New World.

Community Search

In this simulation, an ancient society is forced to leave its ancestral home. Students make choices about migration, occupations, trades, and lodging.

Apple II+/IIe; TRS-80 III/4 (32K d). $180 each. Grades 5–9. McGraw-Hill.

Social Studies: State Guess/Country Guess

Students pick any state or country, and the computer tries to guess which one it is by asking several questions about it.

TRS-80 I/III (16K cs). $9.95. Grades 7–12. Scholastic Inc.

States and Capitals

The program draws a map of individual states. Students must identify the state and name the capital.

Atari (16K d). $14.95. Grades 4–12. Atari, Inc.

Trail West

Players try to reach the California gold fields before their supplies run out in this simulation game.

Commodore 64/PET/VIC-20 (d, cs); TI 99/4A (16K d, cs). $7.95 for Commodore; $9.95 for TI. Grades 5–12. Micro-Ed.

Unlocking the Map Code

Students develop map-reading skills as they explore land and water forms, map colors and symbols, direction, location, measurement and time.

Apple II+/IIe; Atari (48K d). $111. Grades 4–7. Rand McNally & Co.

Westward — 1847

Players take a simulated journey as part of a wagon train going from Independence, Missouri, to Oregon.

TRS-80 I/III (32K cs). $8.95. Grades 7–12. Scholastic Inc. ☐

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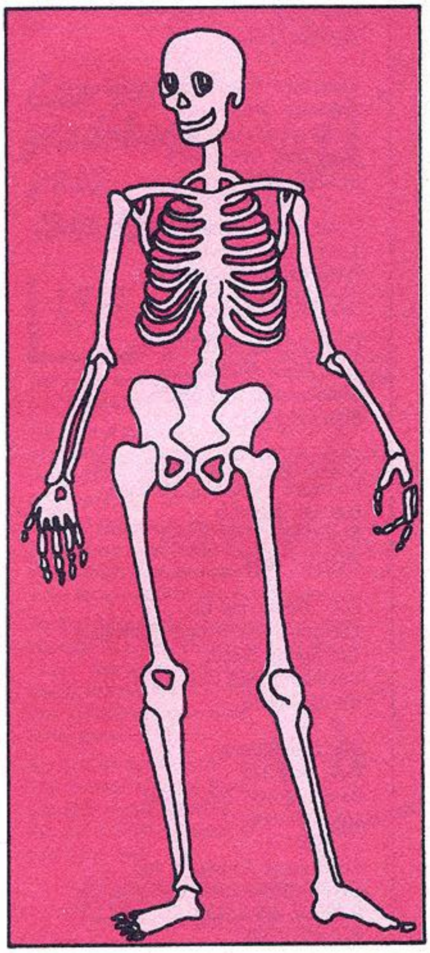

SOFTWARE COMPANIES:

The following list gives the addresses and phone numbers for software producers, publishers, and distributors mentioned in this supplement:

Advanced Ideas
2550 Ninth Street
Suite 104
Berkeley, CA 94710
415/526-9100

Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
408/973-2701

Atari, Inc.
Customer Service
1312 Crossman
Sunnyvale, CA 94086
800/538-8543

Bolt, Beranek, Newman
10 Moulton Street
Cambridge, MA 02238
617/491-1850

BrainBank, Inc.
200 Fifth Avenue
New York, NY 10001
212/686-6565

Children's Television Workshop
Software Group
1 Lincoln Plaza
New York, NY 10023
212/595-3456

Commodore Business Machines
1200 Wilson Drive
West Chester, PA 19380
215/431-9100

Counterpoint Software Inc.
4005 West 56th Street
Minneapolis, MN 55455
800/328-1223

Cybertronics International, Inc.
Software Publishing Division
999 Mt. Kemble
Morristown, NJ 07960
201/766-7681

D.C. Heath and Co.
Division of Electronic Publishing
125 Spring Street
Lexington, MA 02173
617/862-6650

Digital Research
P.O. Box 379
Pacific Grove, CA 93950
408/649-3896

Educational Activities, Inc.
1937 Grand Avenue
Baldwin, NY 11510
516/866-7460

Follett Quality Courseware
4506 Northwest Highway
Crystal Lake, IL 60014
800/435-6170

Harvard Associates
260 Beacon Street
Somerville, MA 02143
617/492-0660

Human Relations Media
175 Tompkins Avenue
Pleasantville, NY 10570
914/769-7496

Koala Technologies Corp.
1800 Embarcadero Road
Palo Alto, CA 94303
408/986-8866

Krell Software Corp.
1320 Stony Brook Road
Stony Brook, NY 11790
516/751-5139

L&S Computerware
HLS Duplications, Inc.
1008 Stewart Drive
Sunnyvale, CA 94086
408/738-3416

The Learning Company
545 Middlefield Road
Suite 170
Menlo Park, CA 94025
415/328-5410

Logo Computer Systems
9960 Cote de Lisse Road
Lachine, Quebec, Canada H8T 1A1
514/631-7081

Math and Computer Education Project
Lawrence Hall of Science and Math
University of California
Berkeley, CA 94720
415/642-8862

McGraw-Hill Book Co.
1221 Avenue of the Americas
New York, NY 10020
212/512-2000

MECC (Minnesota Educational
Computing Consortium)
3490 Lexington Avenue North
St. Paul, MN 55112
612/481-3500

Micro-Ed
P.O. Box 24156
Minneapolis, MN 55424
612/944-8750

Milliken Publishing Co.
1100 Research Blvd.
P.O. Box 21579
St. Louis, MO 63132
314/991-4220

Radio Shack/Tandy Corp.
400 Atrium
1 Tandy Center
Ft. Worth, TX 76102
817/390-3011

Rand McNally & Co.
8255 North Central Park
Skokie, IL 60076
312/673-9100

Random House School Division
400 Hahn Road
Westminister, MD 21157
800/331-5469

Scarborough Systems, Inc.
25 North Broadway
Tarrytown, NY 10591
914/332-4545

Scholastic Inc.
730 Broadway
New York, NY 10003
212/505-3567

Spinnaker Software Corp.
215 First Street
Cambridge, MA 02142
617/868-4700

Sunburst Communications
39 Washington Avenue
Pleasantville, NY 10570
914/769-5030

Terrapin
380 Green Street
Cambridge, MA 02139
617/492-8816

The 22nd Avenue Workshop
P.O. Box 3425
Eugene, OR 97403
503/345-8412

Unicom
297 Elmwood Avenue
Providence, RI 02907
401/467-5600

Waterloo Microsystems
175 Columbia West
Waterloo, Ontario, Canada N2L 5Z5
519/884-3141

Young People's Logo Association
P.O. Box 855067
Richardson, TX 75085
214/783-7548

ELECTRONIC CALENDAR — TEACHER'S GUIDE

Computers and Careers

By Lorraine Hopping

The May/June electronic calendar discusses how computers are and will be used in jobs. This month's teacher's guide answers the questions on the calendar and provides additional information on calendar activities.

May 25:

Education Degrees

The order of education degrees from lowest to highest is: high school diploma, bachelor's, master's, and doctorate.

May 29:

Changing Careers

As computer technology grows, some jobs will be in less demand; others, in more demand; and still other jobs will change in their tasks and responsibilities.

Although no one can foretell exactly what changes will take place in the work force, students can make some reasonable predictions.

For example, bank tellers may be replaced by automatic tellers; research librarians, by on-line information retrieval (databases that people access via computer and telephone line); factory workers, by mechanical robot arms; and meteorologists, by computerized weather forecasters.

On the other hand, there probably will be a greater demand for workers who work closely with computers, such as a computer technician (one who fixes computers), a data entry clerk (one who enters data into a computer), a computer programmer, or a computer salesperson.

Workers whose job descriptions could change (or have already changed) include astronauts who now manipulate robots to perform tasks, such as deploying satellites, instead of doing the work themselves; teachers who use computers as well as textbooks to teach; reporters who now access databases for news and operate a word processing system instead of a typewriter to write their articles; and police officers who access a database and use computer equipment for analyzing evidence in a crime.

June 5:

New Careers

Job titles that didn't exist before we had computers include: data entry clerk, computer technician, computer operator, systems analyst (one who analyzes a company's operations and determines if computers could make it more efficient), and computer programmer.

Career Resources

- *Occupational Outlook Handbook,* (bi-annual publication; 82–83 edition; $13 hardcover; $9 softcover). Department of Labor, Bureau of Labor Statistics, Washington, DC 20212. (Available at most public libraries.)
- *The Computer Careers Handbook,* by Connie Winkler (1983; $12.95 hardcover; $7.95 softcover). Arco Publishing, Inc., 215 Park Ave So., New York, NY 10003.
- *New Jobs, New Technology,* by Diane Storin (1984; $2.95; teaching guide available for $1.50). Scholastic Inc., 730 Broadway, New York, NY 10003.
- *Careers in the Computer Industry,* by Laura Greene (1983; $8.90). Franklin Watts, 387 Park Ave. So., New York, NY 10016.
- *Exploring Careers in the Computer Field,* by Joseph Weintraub (1983; $7.97). Rosen Publishing Group, 29 E. 21st St., New York, NY 10010.
- *Computer Careers: The Complete Pocket Guide to America's Fastest-Growing Job Market,* by Joyce Kennedy et al., (1983; $3.50). Sun Features, Inc., 1160 Rockville Pike, Rockville, MD 20852. ■

Lorraine Hopping is assistant editor for *Teaching and Computers.*

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This is the involvement PLATO® quality courseware brings to basic education.

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Basic Grammar – Features basic language structure and word usage, sentence and paragraph structure and mechanics and conventions on writing.

HIGH SCHOOL SKILLS LESSONS:

This series is designed to provide students with the review or remedial help they may need to develop essential high school skills. Topics include:

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ments, data interpretation and real numbers.

High School Reading – Provides exercises in practical reading, including understanding instructions, contracts, library references, newspapers, etc.

High School Writing – Emphasize grammar skills, spelling, punctuation, capitalization, sentence structure, logic and organization.

Social Studies – Includes economics, geography, political science, history and behavioral science.

High School Science – Includes biology, earth science, chemistry and physics.

Basic or High School Skills courseware operates on the TI 99/4A microcomputer.

*Basic Math and High School Math for your IBM PC will be available soon.

PLATO courseware for Apple II Plus and Apple IIe includes:
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LEARNING CENTER

"Iffy" Situations

By Sandra Markle

This month's column introduces students to the IF/THEN command in BASIC.

Setting Up

Add this command to your "Command Post":

IF/THEN "IF" sets up a comparison between two numbers, strings, or variables. If the expression is true, the computer follows the instructions in the "THEN" command. If false, the computer moves to the next line.

A Group Lesson

Ask students what job each of the following symbols will signal the computer to perform: +, -, *, /. *(Addition, subtraction, multiplication, and division.)* Explain that there is another set of symbols that makes the computer compare two numbers or two string variables. These are:

=	equal to
<>	not equal to
>=	greater than or equal to
>	greater than
<=	less than or equal to
<	less than

To show students how the computer uses these symbols, write this statement on the board:

IF 7 = 7 THEN STAND UP

Tell students that, if the first part is true, they should do what the second part says. If it is false, they shouldn't do anything.

After students have had time to think and respond, announce that the statement is true and have everyone still sitting join those on their feet.

Change the statement to read:

IF 2 > 3 THEN RAISE YOUR RIGHT HAND

Give students a chance to respond. Point out to students who raise their hands that the statement is false; two is not greater than three. Make sure no hands are up.

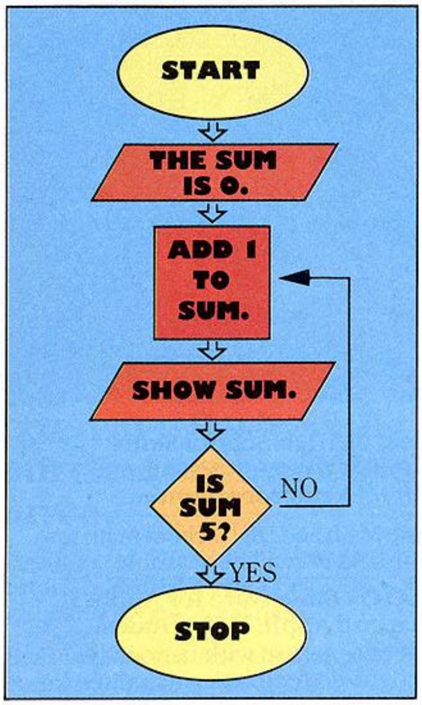
Change the statement to read:

IF 9 <> 1 THEN SIT DOWN

Everyone should sit down this time. Ask students why they sat down. *(The statement is true; nine does not equal one.)*

Play "Computer Says." Make a list of IF/THEN statements such as the ones you wrote on the board. Issue the commands out loud, one at a time, to the class. Anyone who responds incorrectly is "out." The last person still "in" wins.

On the board, draw the flowchart that appears on this page. Point to the decision diamond and explain that IF/THEN commands can make the computer choose between doing two or more things. In this case, if the computer reaches the number five, it stops. If not, it keeps counting.



Flowchart for a program that counts to 5.

Transform the flowchart into a program as follows:

Start	NEW
The sum is 0.	10 X = 0
Add 1 to sum.	20 X = X + 1
Show sum.	30 PRINT X
Is sum 5?	40 IF X<5 THEN 20
Stop	50 END

Have a student type in and RUN the program. The computer will display the numbers one to five straight down the screen. Point out that during each loop back to line 20, the value of *X* changes by one.

Using the Task Cards

Cut out and laminate the task cards and file them in a box near your computer. Here's a summary of the cards' objectives.

Task Card #29: Students use IF/THEN statements to count. *Answer: 50 IF T < 100 THEN GOTO 30.*

Task Card #30: Students use IF/THEN to check for the winner of a game. *Answer: Add these lines: 5 PRINT "WHAT'S YOUR NAME, PLAYER 1?": INPUT N1$*
6 PRINT "WHAT'S YOUR NAME, PLAYER 2?": INPUT N2$
Replace all references to Player 1 and 2 with N1$ and N2$.

Task Card #31: Students use IF/THEN to limit the number of tries a player has in a game. *Answer: Change line 100 to 100 IF X<7 THEN GOTO 70.*

Task Card #32: Students use IF/THEN in a program to restart a game. *Answer to Challenge:*

```
10 PRINT "PLAYER 1 ENTER A
   NUMBER FROM 1 TO 10.": IN-
   PUT N
20 PRINT "TAKE A GUESS,
   PLAYER 2.": INPUT G
30 IF G = N THEN GOTO 50
40 GOTO 20
50 PRINT "WHOOPEE! YOU GOT
   IT!."
```

Editor's Note: Programs work on Radio Shack computers. See chart, page 70, for Atari, Apple, Commodore, and TI conversions. ☐

Sandra Markle is the author of several computer books for children.

CUT OUT AND LAMINATE

LEARNING CENTER TASK CARD

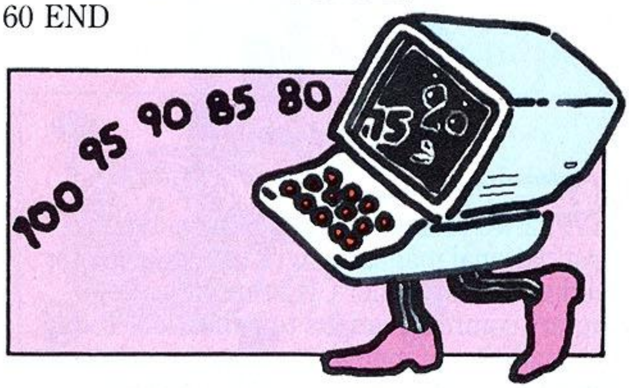
29

OOPS!

This program uses the IF/THEN command to count. Oops! The programmer made a mistake! The THEN GOTO part (line 50) sends the computer to the wrong line. Type in and RUN the program to see what happens. Then fix the mistake by sending the computer to the right line number.

Remember: If the computer keeps looping, stop it by pressing BREAK, RUN/STOP, or CTRL and C at the same time.

```
NEW
10 PRINT "THE COMPUTER WILL COUNT
   FROM 1 TO 100 BY FIVES."
20 T = 0
30 T = T+5
40 PRINT T
50 IF T<100 THEN GOTO 20
60 END
```



LEARNING CENTER TASK CARD

30

MY GROCERY STORE

Use the IF/THEN command to check for the winner of this guessing game. Find a partner. Then type in and RUN the program. How can you make the program print the players' names? Note: Line 40 tells the computer to clear the screen.

```
NEW
10 PRINT "IN MY GROCERY STORE, I SELL
   SOMETHING THAT BEGINS WITH"
20 PRINT "PLAYER 1 ENTER FIRST LET-
   TER OF ITEM:": INPUT L$
30 PRINT "PLAYER 1 ENTER SECRET
   ITEM:": INPUT S$
40 CLS
50 PRINT "FIRST LETTER IS ";L$;". TAKE
   A GUESS, PLAYER 2.": INPUT G$
60 IF G$=S$ THEN GOTO 80
70 GOTO 50
80 PRINT "WAY TO GO, PLAYER 2!!!"
90 END
```

Susan Gaber

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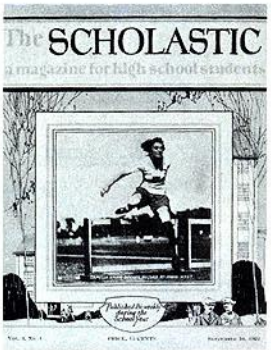

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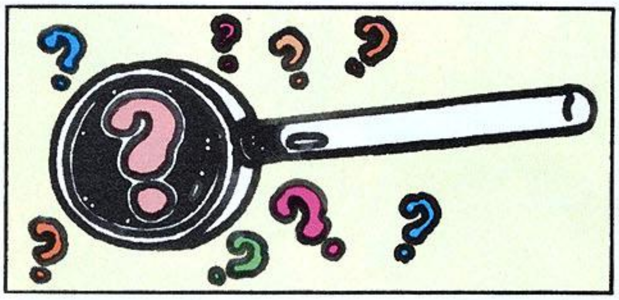
LEARNING CENTER TASK CARD

31

I SPY

Games are more challenging if players only get a few tries. Type in the program and play the game with a partner. After you've played a few times, change the program so that Player 2 gets six guesses.

```
NEW
10 PRINT “I SPY SOMEONE WHOSE NAME STARTS WITH”
20 PRINT “PLAYER 1 ENTER LETTER CLUE:”: INPUT L$
30 PRINT “PLAYER 1 SECRETLY ENTER MYSTERY NAME:”: INPUT N$: CLS
40 PRINT “THE NAME STARTS WITH ” ;L$;“. TAKE A GUESS, PLAYER 2.”: INPUT G$
50 IF G$ = N$ THEN GOTO 90
60 X = X+1
70 IF X<3 THEN GOTO 40
80 PRINT “THE ANSWER IS ”;N$:END
90 PRINT “YOU'RE RIGHT!”: END
```



LEARNING CENTER TASK CARD

32

ONE MORE TIME

IF/THEN can let you play a game again, just by pressing a key! Here's how: Add these lines to the *I Spy* program in the last task card. RUN the program to see what happens.

```
80 PRINT “THE ANSWER IS ”;N$:GOTO 100
90 PRINT “YOU'RE RIGHT!”
100 PRINT “DO YOU WANT TO PLAY AGAIN (Y OR N)?”
110 INPUT Z$
120 IF Z$ = “N” THEN END
130 GOTO 10
```

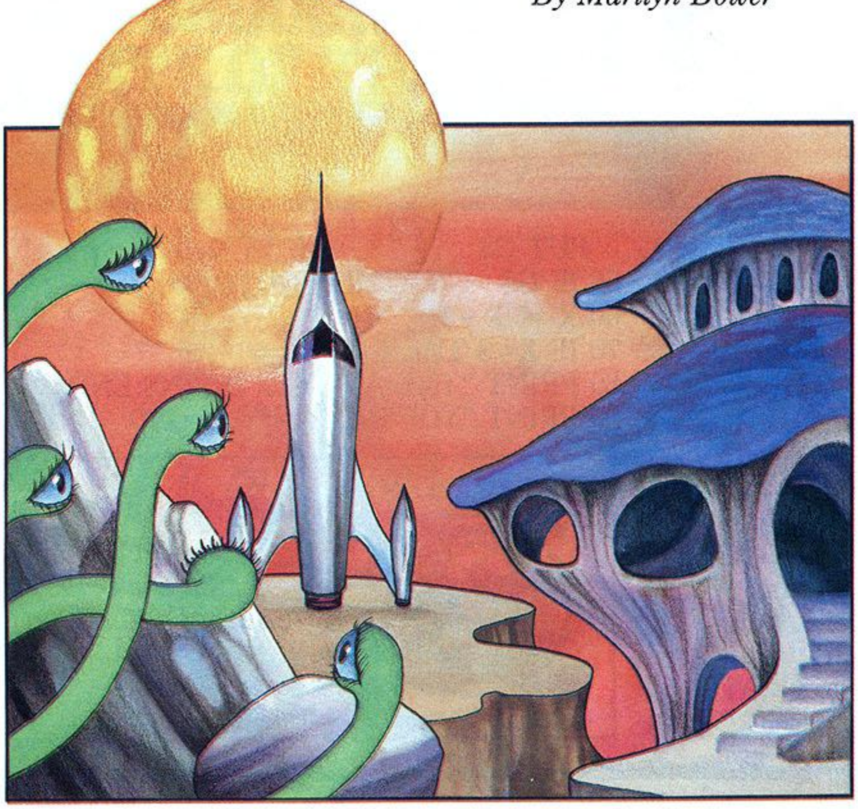
Challenge: Write a program that will RUN this way:

```
PLAYER 1 ENTER A NUMBER BETWEEN 1 AND 10.
TAKE A GUESS, PLAYER 2.
WHOOPEE! YOU GOT IT.
DO YOU WANT TO PLAY AGAIN (Y OR N)?
```

PROGRAM OF THE MONTH

Science Fiction Story Writer

By Marilyn Bower



Students use this month's program to write their own science fiction stories!

In *Science Fiction Story Writer,* students encounter a multi-eyed creature on a distant planet, along with a few other surprises, as they write a science fiction story.

How the Program Works

To establish the setting and plot of their story, students answer a series of questions posed by the computer, such as "What planet are your going to visit?" and "What is the name of your spaceship?" The computer inserts students' answers into a first person narrative about a visit to an alien planet. The result is a unique story in which the student who answered the computer's questions becomes the central character. Kids can print their stories on paper or display them on the screen.

Using the Program in Language Arts

The major theme in science fiction is the impact of science or technology on society—on travel, life-styles, human relations, politics, warfare, and entertainment. Its objective is to encourage readers to imagine changes in society and either accept or reject those changes.

Science fiction often takes place in the future, where, with a little imagination, almost anything is possible. Literature critics say good science fiction provides details and explanations of new or unusual phenomena, which make the story credible.

Jules Verne is a classic example of a good science fiction writer. In the 1800s, he wrote about the wonders of atomic submarines and space travel, both of which have become reality in the 1900s.

Many students are already familiar with science fiction books based on movies, such as the *Star Wars* series, *E.T. the Extra-Terrestrial, Close Encounters of the Third Kind,* and *Star Trek I* and *II.* Encourage them to read other books, too. *(See reading list at end of article.)*

Have students prepare a report on a science fiction book. The report should discuss the science element in the book; how that science element affects an individual or society; the author's message (theme); the relevance of the book's theme to the modern world; and the credibility of the events.

Have students use *Science Fiction Story Writer* to write several stories. Using a word processor or pencil and paper, have them write a sequel to their favorite version.

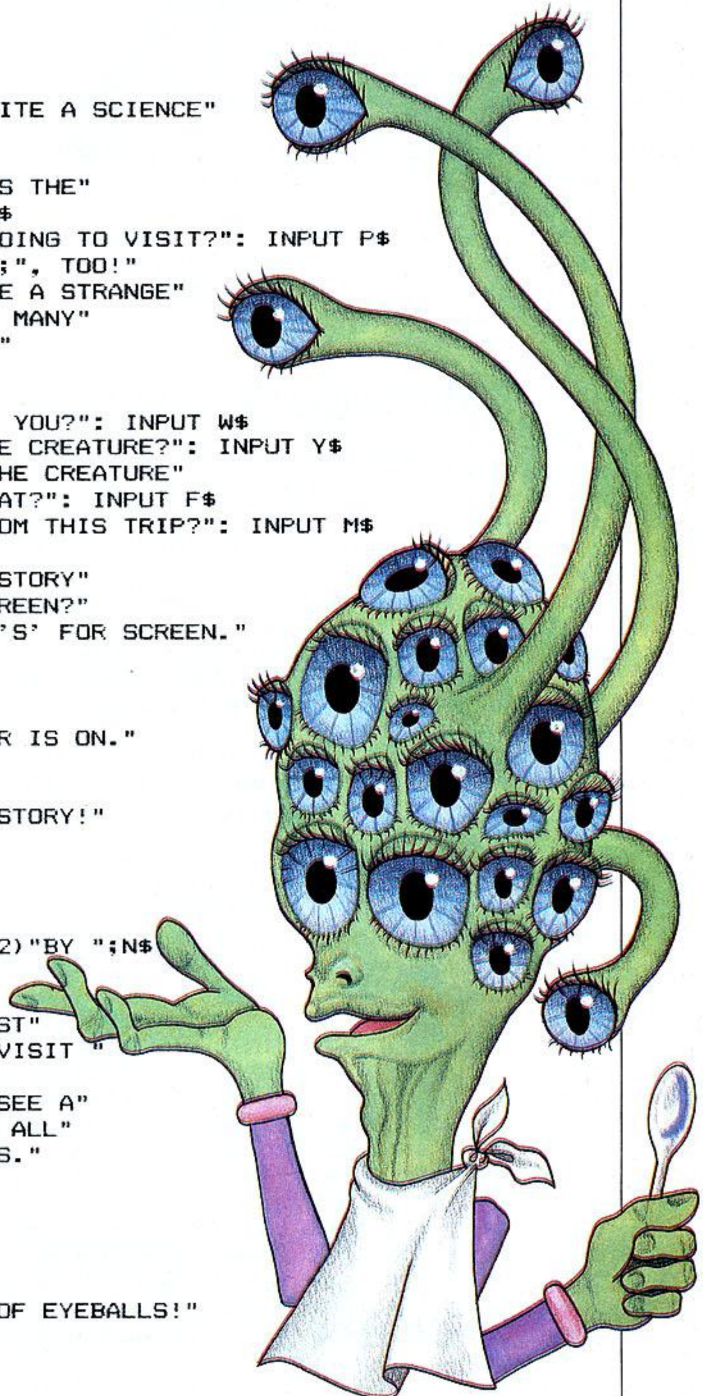
Reading List

- *A Wrinkle in Time* (1973), by Madeline L'Engel. Dell Publishing Co., One Dag Hammarskjold Plaza, 245 E. 47th St., New York, NY 10017.
- Series of seven science fiction anthologies: *The Tunnel and Other Stories; The Mind Angel and Other Stories; The Missing World and Other Stories; Night of the Sphinx and Other Stories; The Graduate Robot and Other Stories; Journey to Another Star and Other Stories; The Killer Plants and Other Stories* (1974), all edited by Roger Elwood. Lerner Publications, 241 First Ave., Minneapolis, MN 55401.
- *The Wonderful Flight to the Mushroom Planet* (1954), by Eleanor Cameron. Little, Brown & Co., 34 Beacon St., Boston, MA 02106.
- *Dragonfall 5 and the Empty Planet* (1976), *Dragonfall and the Royal Beast,* both by Brian Earshaw. Lothrop, Lee and Shepherd, 105 Madison Ave., New York, NY 10016.
- *The City of Gold and Lead* (1967), *The Guardians* (1972), *The Pool of Fire* (1968), *The White Mountains* (1967), all by John Christopher. Macmillan Publishing Co., 866 Third Ave., New York, NY 10022. ☐

Marilyn Bower is a librarian at Southgate Elementary School in Glen Burnie, Maryland.

Illustrations by Clare Sieffert

Program Listing for *Science Fiction Story Writer*
This program listing is for Apple computers. Command conversions for Atari, Commodore, and Radio Shack computers appear in the chart on page 70.



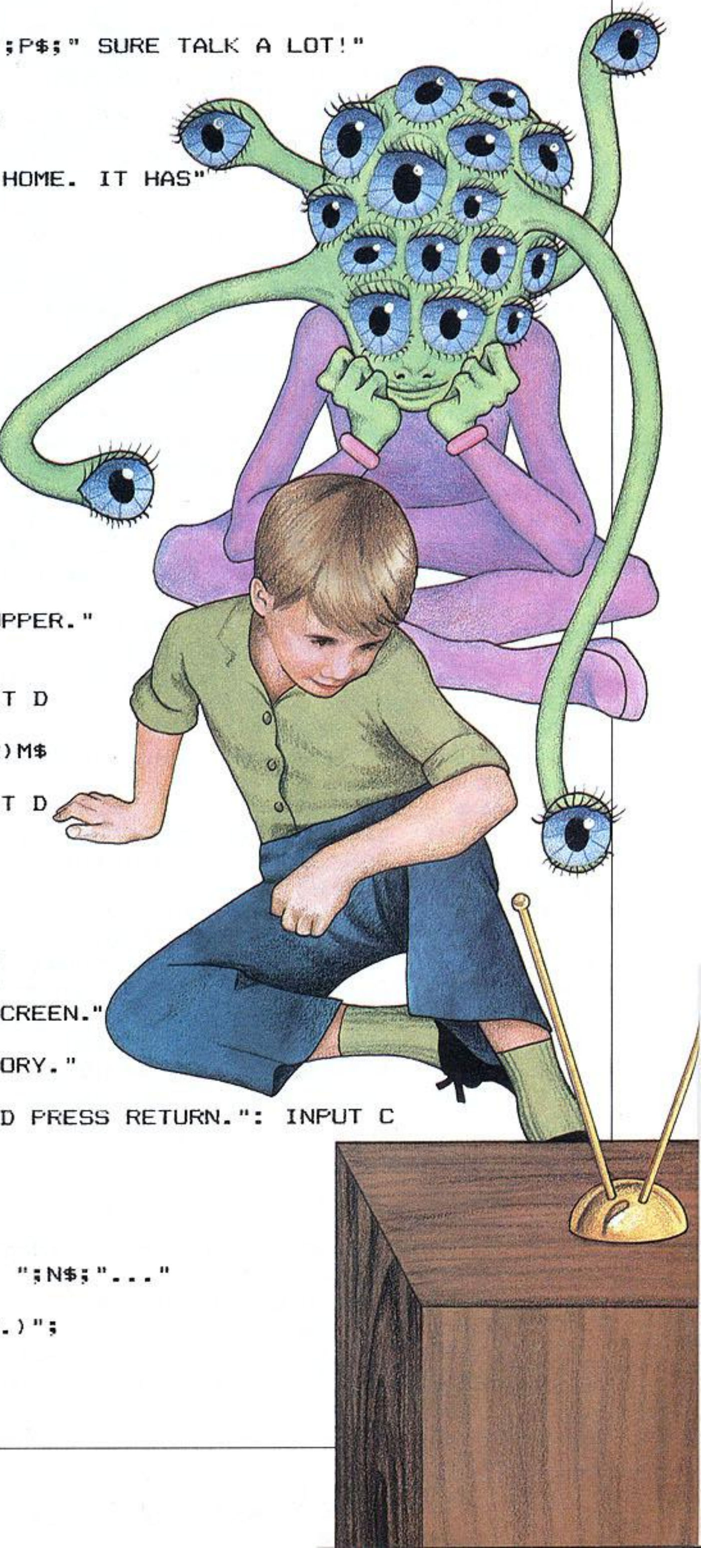
```
1000  HOME
1010  REM  SCIENCE FICTION STORY
1020  PRINT "   WHAT IS YOUR NAME?": INPUT N$
1030  PRINT : PRINT "   HI, ";N$;"!  LET'S WRITE A SCIENCE"
1040  PRINT "FICTION STORY TOGETHER!"
1050  GOSUB 5000
1060  PRINT "   YOU'RE IN A SPACESHIP. WHAT IS THE"
1070  PRINT "NAME OF THE SPACESHIP?": INPUT S$
1080  PRINT : PRINT "   WHAT PLANET ARE YOU GOING TO VISIT?": INPUT P$
1090  PRINT : PRINT "GOOD CHOICE! I LIKE ";P$;", TOO!"
1100  PRINT : PRINT "   WHEN YOU LAND, YOU SEE A STRANGE"
1110  PRINT "BEING WITH HUNDREDS OF EYES. HOW MANY"
1120  PRINT "EYES DOES IT HAVE? (NO MORE THAN"
1130  PRINT "1000, PLEASE!)": INPUT E
1140  HOME
1150  PRINT "   WHAT DOES THE CREATURE SAY TO YOU?": INPUT W$
1160  PRINT : PRINT "   WHAT DO YOU SAY TO THE CREATURE?": INPUT Y$
1170  PRINT : PRINT "   YOU FOLLOW IT HOME. THE CREATURE"
1180  PRINT "SERVES YOU SUPPER. WHAT DO YOU EAT?": INPUT F$
1190  PRINT : PRINT "   WHAT DID YOU LEARN FROM THIS TRIP?": INPUT M$
1200  HOME
1210  PRINT "   WOULD YOU LIKE TO PRINT YOUR STORY"
1220  PRINT "ON PAPER OR DISPLAY IT ON THE SCREEN?"
1230  PRINT : PRINT "PRESS 'P' FOR PRINT AND 'S' FOR SCREEN."
1240  INPUT X$
1250  IF X$ = "S" THEN F = 0: GOTO 1290
1260  IF X$ <  > "P" THEN  GOTO 1200
1270  PRINT : PRINT "   MAKE SURE YOUR PRINTER IS ON."
1280 F = 1: GOSUB 5000
1290  REM  TELL STORY
1300  PRINT "   HERE IS YOUR SCIENCE FICTION STORY!"
1310  GOSUB 5000
1320  PR# F
1330  PRINT  TAB( 12)"MY ADVENTURES ON"
1340  PRINT  TAB( (40 -  LEN (P$)) / 2)P$
1350  PRINT : PRINT  TAB( (37 -  LEN (N$)) / 2)"BY ";N$
1360  PRINT : PRINT : PRINT
1370  PRINT "   MY NAME IS ";N$;"."
1380  PRINT "MY SPACESHIP, THE ";S$;", HAS JUST"
1390  PRINT "BLASTED OFF.  I AM ON MY WAY TO VISIT "
1400  PRINT "THE PLANET ";P$;"."
1410  PRINT : PRINT "   WHEN ";S$;" LANDS, I SEE A"
1420  PRINT "STRANGE BEING LOOKING AT ME FROM ALL"
1430  PRINT "DIRECTIONS. I WILL COUNT ITS EYES."
1440  PRINT
1450  IF X$ = "S" THEN  GOSUB 5000
1460  FOR N = 1 TO E
1470  PRINT " @ ";
1480  NEXT N
1490  PRINT : PRINT : PRINT "   THAT'S A LOT OF EYEBALLS!"
1500  PRINT
1510  IF X$ = "S" THEN  GOSUB 5000
1520 Q$ =  CHR$ (34)
1530  PRINT : PRINT "   WE GREET EACH OTHER WITH A FEW WORDS."
1540  PRINT "(EYEBALL TO EYEBALL, THAT IS.)"
```

(continued)

PROGRAM OF THE MONTH

(continued from page 53)

```
1550  PRINT : PRINT "   THE CREATURE LOOKS AT ME AND SAYS,"
1560  IF X$ = "S" THEN  FOR D = 1 TO 3000: NEXT D
1570 E1 = E: IF E > 200 THEN E1 = 200
1580  FOR X = 1 TO E1
1590  PRINT Q$;W$;Q$;"...";
1600  NEXT X
1610  PRINT : PRINT : PRINT "   CREATURES ON ";P$;" SURE TALK A LOT!"
1620  PRINT
1630  IF X$ = "S" THEN  GOSUB 5000
1640  PRINT "   I GAZE INTO ITS EYES AND SAY,"
1650  PRINT Q$;Y$;Q$
1660  PRINT : PRINT "   I FOLLOW THE CREATURE HOME. IT HAS"
1670  PRINT "A VERY FANCY HOUSE!"
1680  IF X$ = "S" THEN  GOSUB 5000
1690  PRINT
1700  PRINT "    **"
1710  PRINT "   *"
1720  PRINT "  []"
1730  PRINT " @@@@@"
1740  PRINT "<^^^^^>
1750  PRINT "!     !"
1760  PRINT "!     !"
1770  PRINT "!  #  !"
1780  PRINT "!  #  !"
1790  PRINT "_______"
1800  PRINT : PRINT "HOME SWEET HOME."
1810  PRINT
1820  IF X$ = "S" THEN  GOSUB 5000
1830  PRINT "   THE CREATURE SERVES A GREAT SUPPER."
1840  PRINT "WE EAT ";F$;" AND WATCH TV."
1850  PRINT
1860  IF X$ = "S" THEN  FOR D = 1 TO 1000: NEXT D
1870  PRINT "   THE MORAL OF THE STORY IS:"
1880  PRINT : PRINT  TAB( (40 -  LEN (M$)) / 2)M$
1890  PRINT
1900  IF X$ = "S" THEN  FOR D = 1 TO 3000: NEXT D
1910  PRINT  TAB( 17)"THE END"
1920  PRINT
1930  IF X$ = "S" THEN  GOSUB 5000
1940  PR# 0
1950  HOME
1960  PRINT "  WHAT WOULD YOU LIKE TO DO NOW?"
1970  PRINT "   1  PRINT YOUR STORY ON PAPER."
1980  PRINT "   2  DISPLAY YOUR STORY ON THE SCREEN."
1990  PRINT "   3  WRITE A WHOLE NEW STORY."
2000  PRINT "   4  LET SOMEONE ELSE WRITE A STORY."
2010  PRINT "   5  END THE PROGRAM."
2020  PRINT : PRINT "ENTER 1, 2, 3, 4, OR 5 AND PRESS RETURN.": INPUT C
2030  IF C = 1 THEN X$ = "P": GOTO 1270
2040  IF C = 2 THEN X$ = "S":F = 0: GOTO 1290
2050  IF C = 3 THEN  HOME : GOTO 1060
2060  IF C = 4 THEN  GOTO 1000
2070  IF C > 5 THEN  GOTO 2020
2080  PRINT : PRINT "   NICE WORKING WITH YOU, ";N$;"..."
2090  END
5000  PRINT : PRINT "(PRESS RETURN TO CONTINUE.)";
5010  INPUT Z$
5020  HOME
5030  RETURN
```



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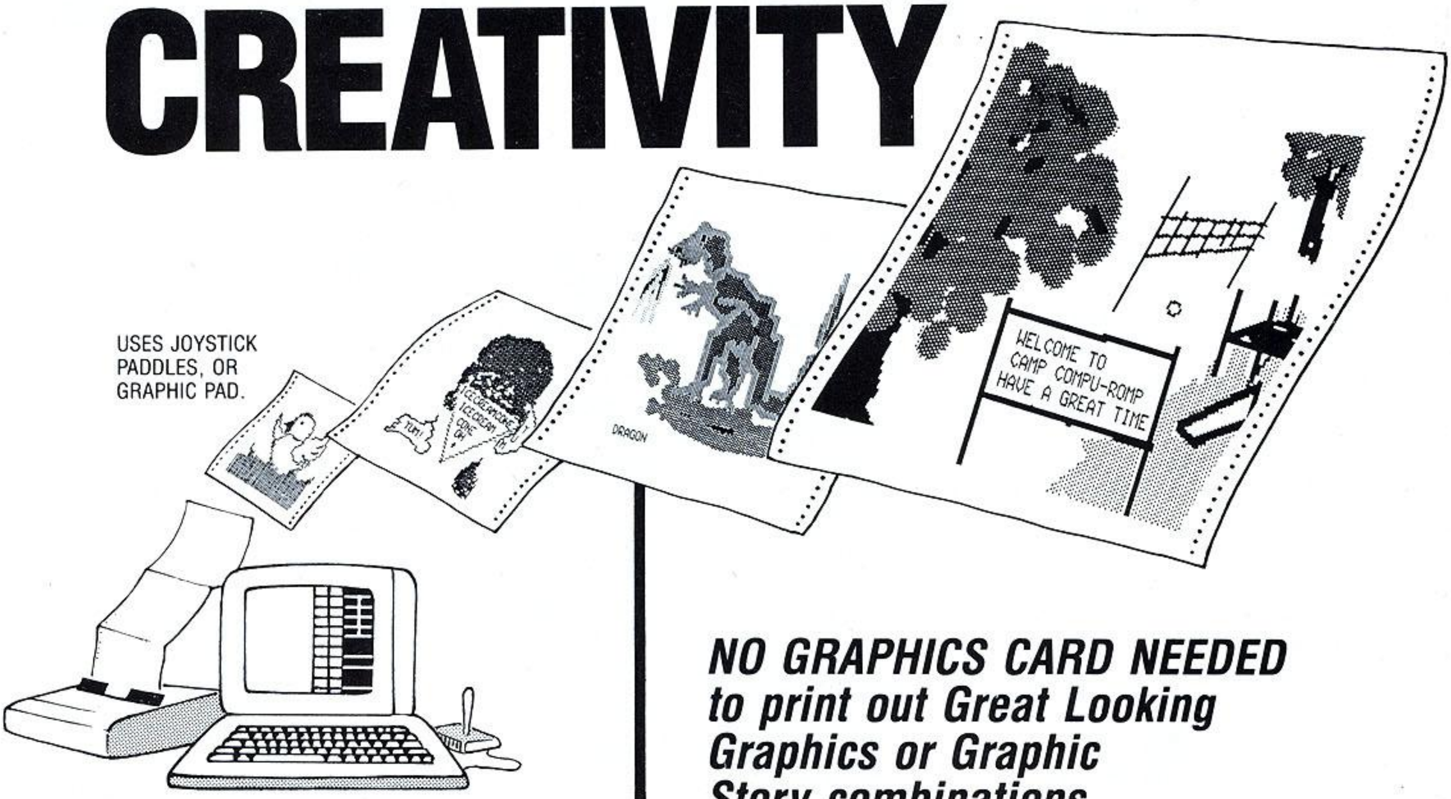

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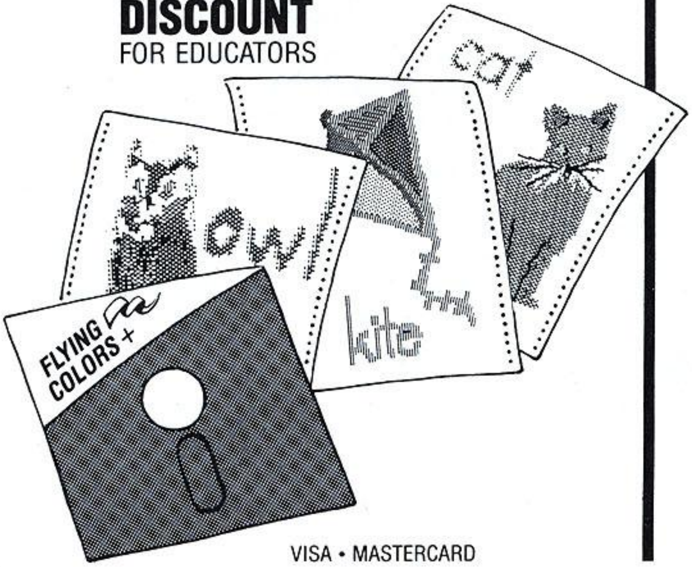

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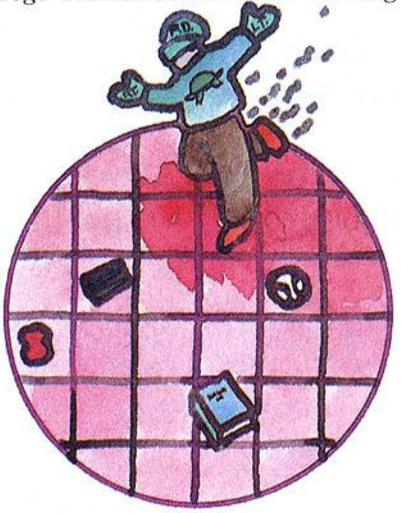
MICRO IDEAS

Quick Computer Tips and Activities

Teach Logo with Turtle Toss

Turtle Toss teaches students to use the Logo commands FORWARD, BACK, LEFT, and RIGHT.

To play, cut out construction paper letters for the Logo commands FORWARD and BACK (FD and BK) and tape them to the front and back of an old ski cap. Do the same for the commands LEFT and RIGHT (LT and RT) and tape the letters to a pair of mittens — one command per mitten. Select a student to be the "turtle." This student wears the cap and mittens in their appropriate positions, allowing classmates to refer to the Logo commands and their meaning.



Grid for Turtle Toss game.

Prepare a large grid (see illustration) for the floor, using a plastic tablecloth or butcher paper and a felt-tip pen. Have the turtle toss a beanbag to a box on the grid. The other children direct the turtle to the box the beanbag landed on by giving Logo commands. To reach the beanbag in the illustration, the commands would be FD 2, RT 90, FD 3.

To make the game more challenging, I place obstacles on the grid that the turtle must be instructed to move around. □

Dorothy J. Spahr
Waltham, MA

Quick Tips

Select a student to be Computer King or Queen for the day. Wearing a cardboard crown, the monarch monitors computer activities, finds you when someone needs help, and ensures that all software is put away and computer equipment is turned off at the end of the day.

Pat Roberts

To help my students become familiar with computer equipment, I label all monitors, disk drives, and keyboards with cardboard nameplates. □

Kathy Marcuson

Give Students a Computerized Send-off

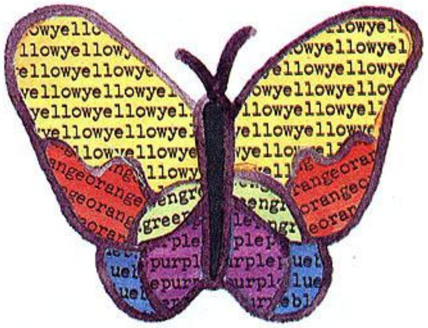
If you have an Atari computer, send your students on their summer vacations with a special message. The program listed below displays "HAVE A GOOD SUMMER," and "SEE YOU IN SEPTEMBER." Between these two messages, a different classmate's name flashes on the screen each time.

Type the listing as it appears below. When you come to line 800, list your students' names after the DATA command, instead of CAROL,TIM,ELLEN,FRED . . . . List the names, one after the other, separating each by a comma. After all your students' names have been entered, enter CLASS as the last name. (Line 70 instructs the computer to go back to the beginning of the list of names when it reaches CLASS.)

```
10 DIM A$(20)
20 GRAPHICS 18:SETCOLOR 2,4,8
30 POSITION 0,1:? #6;“ ”
40 POSITION 1,3:? #6;“HAVE A GOOD SUMMER”
50 POKE 77,0
60 READ A$
70 IF A$=“CLASS” THEN RESTORE 800
80 POSITION 0,7:? #6;“SEE YOU IN SEPTEMBER”
90 POSITION 0,9:? #6; “ ”
100 FOR X=1 TO 6
110 POSITION 7,5:? #6;“leave 12 spaces”
120 FOR W=1 TO 100:NEXT W
130 POSITION 7,5:? #6;A$
140 FOR W=1 TO 300:NEXT W
150 NEXT X
160 POSITION 7,5:? #6;A$:FOR W=1 TO 800:NEXT W
170 GOTO 60
800 DATA CAROL,TIM,ELLEN,FRED, . . . CLASS
```

Change the messages in lines 40 and 80, so that you can use this program for other special occasions during the year, such as the first day of school, birthdays, and Christmas vacation. □

Jim Alvaro
Detroit, MI



Create a Typewriter Art Gallery

Students can create attractive art as they practice keyboarding skills. Here's how.

First, have kids draw or trace a simple picture or pattern on a piece of typing paper. Instruct students to place the paper in the typewriter and type a set of words or letters to fill the design. Tell them to try to stay within the outline of the design as best they can. The words or letters they choose to type should relate to the design in some way. For instance, one student made a butterfly

Susan Gaber

For more information about the products and services advertised in this issue...

1 Selectively circle the numbers on the reply card.

2 Check the appropriate answers to the reader classification questions.

3 Be sure to fill in your name, school, and address. *(Incomplete information will void the card.)*

4 Tear out reply card and mail promptly. Cards postmarked after expiration date cannot be processed.

TEACHING and computers

May/June 1984
(Expires August 1)
READER SERVICE CARD

Please circle an entry for each category.

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☐ a. Elementary (k-6; k-8)
☐ b. Middle School
☐ c. Junior High
☐ d. Senior High
☐ e. Junior/Senior
☐ f. College
☐ g. District
☐ h. State
☐ i. Federal/National
☐ j. Other

II. Your primary job (check one)
☐ 1. Administrative (including Superintendent/Principal)
☐ 2. Teaching (including Department Head)
☐ 3. Evaluation/Purchasing
☐ 4. Curriculum Development
☐ 5. Media Specialist/Librarian
☐ 6. Other

III. What is your primary involvement with computers?
☐ a. Actively use computers
☐ b. Recommend type/brand
☐ c. Approve purchase
☐ d. General interest
☐ e. All of the above

IV. Your school or district's investment in electronic learning materials.
☐ 1. Increasing
☐ 2. Decreasing
☐ 3. No Change

V. In which area does your school or district use computers? (check one)
☐ a. Interdisciplinary (elementary classroom)
☐ b. Math
☐ c. Reading
☐ d. Science
☐ e. Business/Vocational Education
☐ f. Computer Sciences
☐ g. Social Sciences
☐ h. English/Language Arts
☐ i. Other

VI. How does your school or district use computers?
☐ 1. Primarily for administrative purposes
☐ 2. Primarily for instructional purposes

VII. What type of software has your school/district purchased in the past year?
☐ a. Curriculum-based courseware
☐ b. Fun/Learning software
☐ c. Word Processing
☐ d. Utility
☐ e. Programming

VIII. Your school/district enrollment
☐ 1. Under 300
☐ 2. 300–499
☐ 3. 500–999
☐ 4. 1000–4999
☐ 5. 5000–9999
☐ 6. 10,000–24,000
☐ 7. 25,000 +

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School or Office

Address

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TEACHING and computers

May/June 1984
(Expires August 1)
READER SERVICE CARD

Please circle an entry for each category.

I. Level (check one)
☐ a. Elementary (k-6; k-8)
☐ b. Middle School
☐ c. Junior High
☐ d. Senior High
☐ e. Junior/Senior
☐ f. College
☐ g. District
☐ h. State
☐ i. Federal/National
☐ j. Other

II. Your primary job (check one)
☐ 1. Administrative (including Superintendent/Principal)
☐ 2. Teaching (including Department Head)
☐ 3. Evaluation/Purchasing
☐ 4. Curriculum Development
☐ 5. Media Specialist/Librarian
☐ 6. Other

III. What is your primary involvement with computers?
☐ a. Actively use computers
☐ b. Recommend type/brand
☐ c. Approve purchase
☐ d. General interest
☐ e. All of the above

IV. Your school or district's investment in electronic learning materials.
☐ 1. Increasing
☐ 2. Decreasing
☐ 3. No Change

V. In which area does your school or district use computers? (check one)
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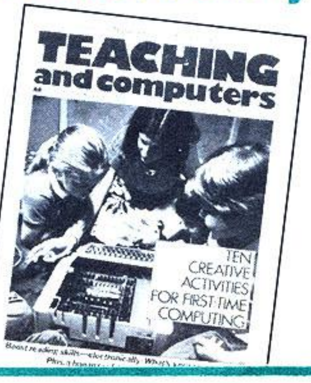

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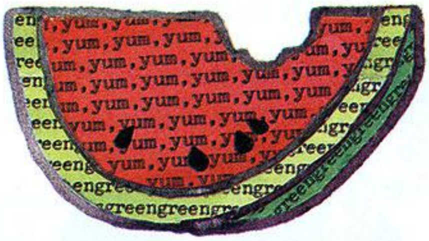

and filled in each section of the butterfly with the word for the color she was planning to color that particular section. Another student drew a slice of watermelon and typed the word *yum* throughout the slice. After the drawings are filled with typed words or letters, have the students color them in.

Now display the typewriter art on a bulletin board and label it "Typewriter Art Gallery." ☐

Mary Ellen Switzer
Del Mar, CA

Store Computer Books in the Gutter

Now this doesn't mean throw your books into the sewer! It means to use aluminum rain gutters as display racks in your classroom for computer books and manuals. Rain gutters are cheap, easy to install, and are great space savers.

We've placed two gutters in our computer corner, one above the other, approximately one foot apart. Not only do the gutters make an attractive display, but they also save time. Rather than hunt through a stack of computer books, kids can skim the gutters quickly for material they need. ■

Joan Lippman
San Jose, CA

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Do you have computer activities, bulletin boards, or management tips you'd like to share? Send them to Micro Ideas, *Teaching and Computers,* 730 Broadway, New York, NY 10003. We'll pay $15 to $30 for each idea we publish and $5 for each quick tip we use.

CIRCLE 10 ON READER SERVICE CARD

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- "Letter Sounds"
- "Building Words"

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PC*jr,* the newest personal computer in the IBM® family, is ready to prove itself in school.

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PC*jr* comes with lots of bright ideas that help make computing easy for everyone.

One handy new feature is a keyboard with color-coded keys to help a person quickly select the right ones. And the keyboard can be customized with overlays designed for specific software programs.

PC*jr* is flexible in other ways, too. It can be hooked up to a TV, an IBM Personal Computer Color Display, or to other monitors.

Another good idea is the Keyboard Adventure, a built-in instructional exercise for first-time users of all ages.

Or students can explore computer fundamentals at their own pace by using a tutorial program included with diskette-drive systems.

WHY PC*jr* APPEALS TO KIDS

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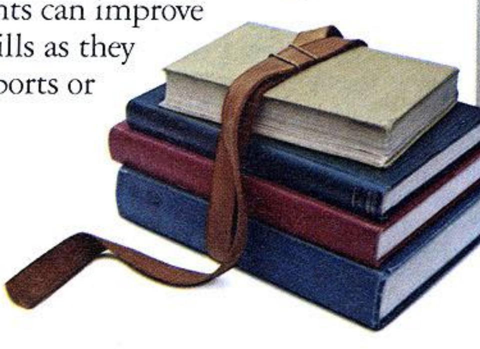
By using an IBM word processing program, students can improve their writing skills as they prepare book reports or term papers.



A TEACHER'S AID

Teachers can use PC*jr* for their own work, too. For example, there is software that can be used to write lesson plans or prepare quizzes.

And PC*jr* can also run many other IBM programs originally created for other IBM Personal Computers.

PC*jr* is a tool for modern times that can give teachers more time to teach.

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PC*jr* is priced to make the most of any school budget. A starting model with 64KB user memory, a cassette tape connector, two cartridge slots and a keyboard costs about $700. An enhanced model with 128KB memory and diskette drive is about $1300. (These prices, which do not include monitors, apply at IBM Product Centers. Prices at other stores may vary.)

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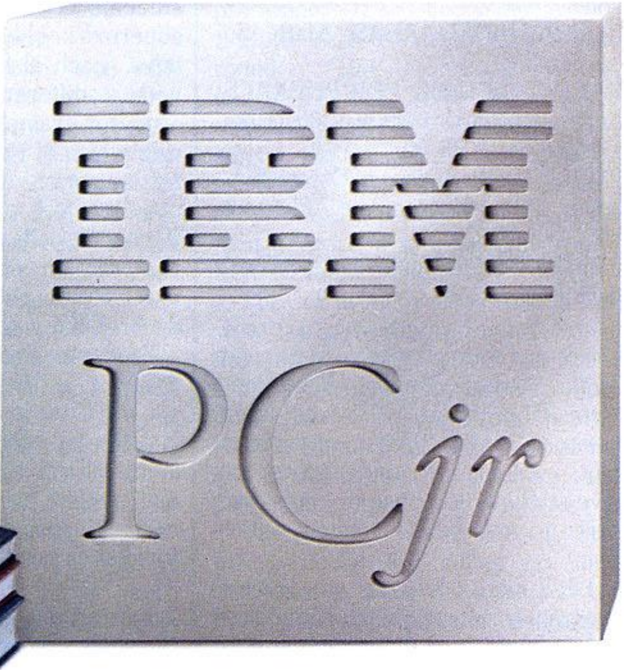
To learn more about what PC*jr* can do in your school, contact your local IBM office and ask for the IBM Education Marketing Representative, or visit an authorized IBM PC*jr* dealer. For the store nearest you, dial 1-800-IBM-PCJR. In Alaska and Hawaii, 1-800-447-0890.

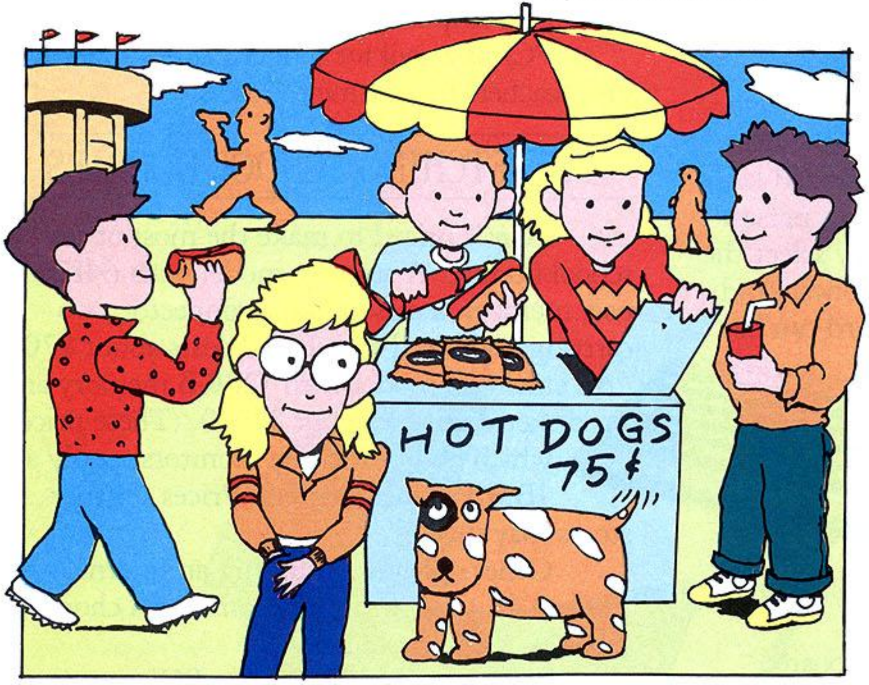


CIRCLE 17 ON READER SERVICE CARD

COMPUTING IN THE CONTENT AREAS

Teach Consumer Awareness With Survival Math

By Michael Cook



Kids develop consumer and business skills by running a hot dog stand.

SOFTWARE: *Survival Math*
GRADE LEVEL: Upper elementary.
PURPOSE: Develops math and social studies skills using economics simulations.
CURRICULUM AREAS: Math, Social Studies.
HARDWARE AND PERIPHERALS: Apple II, Atari 400/800/1200, Commodore 64, TRS-80.
PUBLISHER: Sunburst Communications, 39 Washington Ave., Pleasantville, NY 10570.
PRICE: $50 for disk and teacher's guide.

There are four programs in *Survival Math*: "Smart Shopper Marathon," "Hot Dog Stand," "Travel Agent Contest," and "Foreman's Assistant." All four are simulations that give students a chance to apply math skills to everyday economic activities.

Let's take a look at two of these programs, "Smart Shopper" and "Hot Dog Stand," and how they can be used in your curricula.

"Smart Shopper Marathon"

Program Description:

As consumers in "Smart Shopper," students go through five aisles in a supermarket looking for the best buys. Each aisle presents shoppers with a different situation. In one aisle, for example, students must decide which of two items has the lowest unit price. In another, they must choose which of two sale items has the bigger dollar savings. Throughout the program, students practice their multiplication and division skills, using decimal and whole numbers.

Students also develop speed and accuracy as they work against a 60-second clock in each aisle. One point is given for each correct answer that is calculated before the clock runs out. If all 25 problems in the aisle are correctly answered, students receive five bonus points.

Running the Program:

Because "Smart Shopper" is fast-paced, it helps if students get a little practice in computing unit prices of items before running the program. Be sure to explain to students the concept of unit pricing, and why it is useful to consumers. The *unit price* is the price of an item broken down into the lowest measurable unit. For example, the unit price of a six-ounce bottle of soda is its price per ounce. Consumers use unit pricing to compare prices of similar items that are packaged in different amounts.

Collect six to 12 supermarket ads from newspapers, and have students compute the unit price of several different brands of an item and then compare these prices. For example, a pound of Brand X spaghetti costs 89 cents, while Brand Y sells spaghetti only in eight-ounce boxes for 36 cents. To compute the unit price, students must convert Brand X's weight to ounces, and then divide the ounces of both brands into the price. Brand Y costs 4 cents an ounce; Brand X costs 5.5 cents an ounce. Brand X offers more, but Brand Y is cheaper. If the quality is the same, which brand would you buy?

It's better for students to play "Smart Shopper Marathon" alone, because they are competing against a clock, and there is really no time for group consultation.

Have students keep track of their shopping skills by recording their scores on a line graph each time they use the program. Students can note their improvement by the angle of the line on the graph.

A way to use the program as a group activity is to divide the class into two "families." Each family's goal would be to make family members smart shoppers. Have each member play a complete game. When all the members have played one game, have a family meeting to total the scores. The family with the higher score wins.

During the meeting, have family members discuss ways to improve individual scores. Those students who are strong in one shopping activity could work with those who need help in that particular skill. A family's success depends on how well the members cooperate with each other.

Extension Activities:

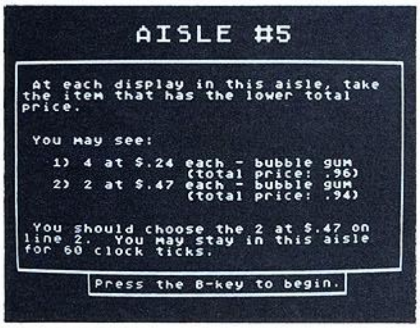
- Have your students bring in different types of newspaper and magazine ads to study. Make a list of the gimmicks that are used in the ads to lure consumers to buy products that they don't necessarily need. Some of the gimmicks may be coupons, and special sale days — Presidents' Day Sale, After Christmas Sale. Point out to students that as consumers they are vulnerable to these gimmicks.
- "Smart Shopper" can also serve as an introduction to nutrition. Have your students bring in labels from frozen, canned, and boxed foods. Federal regulations require that labels list the ingredients on the package. Some labels even include the nutritional value of the product. Select students to read aloud the ingredients and the nutritional value charts from the labels. Which types of food have fewer chemicals and more nutritional value?
- Then compare the prices of the different types of food. Are frozen foods more expensive than canned foods? Smart shoppers consider all factors — nutritional value, ingredients, and price — to get the most from their dollars.

"Hot Dog Stand"

Program Description:

In "Hot Dog Stand," students earn as much money as possible by operating a hot dog stand at a football stadium. Variables, such as weather, type of game, time of day, and day of week, are determined by and displayed on the computer before each game. Students use these variables to estimate the size of the crowd, and then buy supplies accordingly. For instance, the homecoming game is scheduled for Saturday, at 1 p.m., and the weather forecast is clear and warm. Expecting a large crowd for this game, students should stock up and buy more supplies than usual for what will be a profitable day. The program randomly generates problems and events, so students will usually get a different type of problem to solve for each game.

Students decide the quality and quantity of hot dogs, soda, and potato chips to buy for the eight games in the season. After each football game, the computer tells students how much profit they made. After all eight games, children compute their total loss or profit.



```
                AISLE #5

 At each display in this aisle, take
the item that has the lower total
price.

 You may see:

   1) 4 at $.24 each - bubble gum
                 (total price: .96)
   2) 2 at $.47 each - bubble gum
                 (total price: .94)

 You should choose the 2 at $.47 on
line 2.  You may stay in this aisle
for 60 clock ticks.

       Press the B-key to begin.
```

Smart shoppers compare prices.

Running the Program:

"Hot Dog Stand" works well with groups. Divide students into groups of three that will form companies. One member can be in charge of research and keep track of the weather forecast and supplies that are displayed briefly on the screen. Another member can be responsible for purchasing and determining the quality and quantity of items to buy. The third student plans marketing strategy and sets the selling prices for each game.

Have the groups prepare weekly reports on company profits. The reports should include two graphs. The first graph shows the profit made after each football game. The second graph compares total profits each time the company completes the program.

Extension Activities:

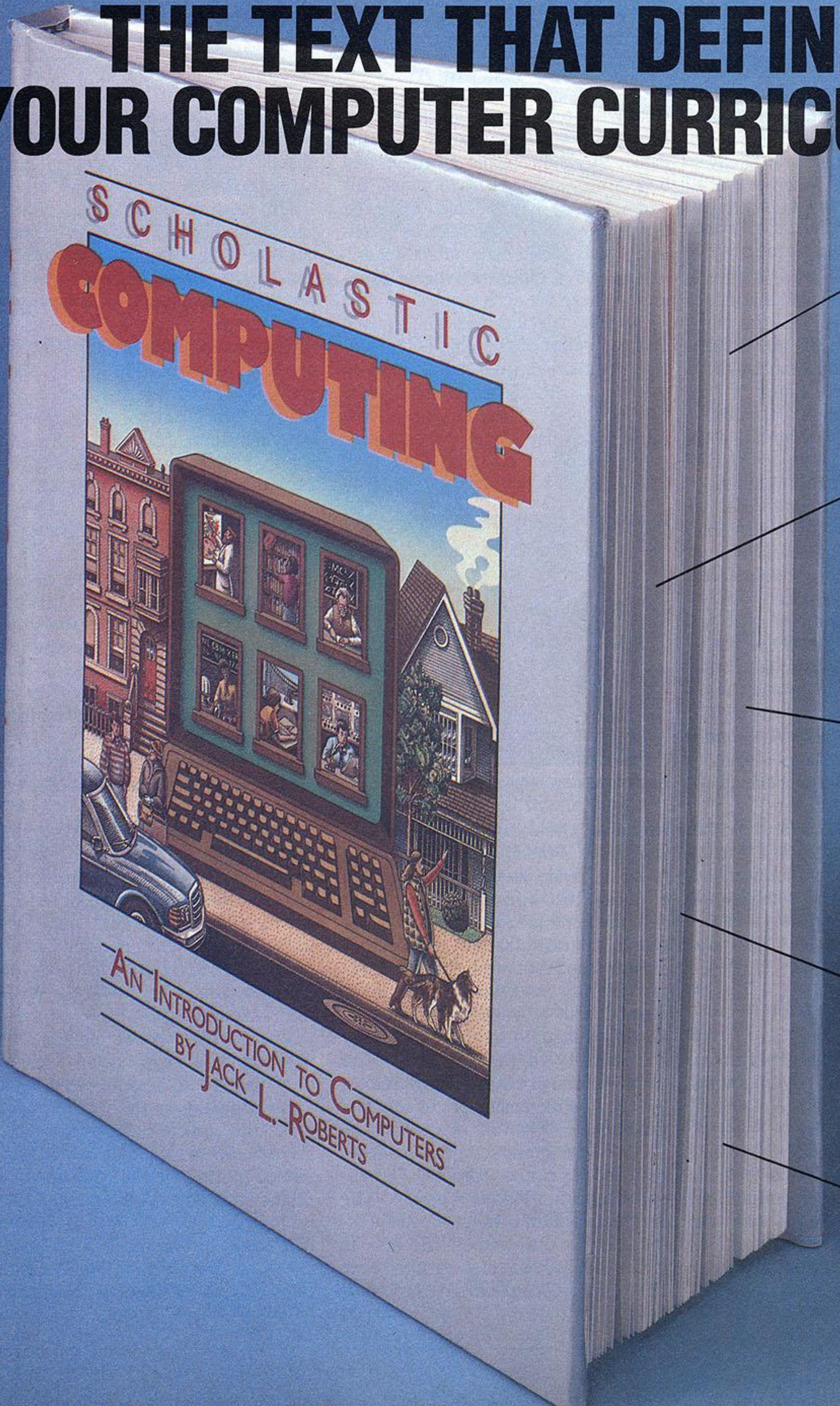
- After every student has had a chance to play "Hot Dog Stand," have the class make a list of the strategies that led to higher profits. Divide this list into two categories: business strategies that are fair to consumers, and business schemes that take advantage of consumers. For example, a strategy that is fair to consumers is selling good quality hot dogs at a reasonable price. Have your students suggest other fair practices in business and why they are important. Now ask your students to list unfair business practices, such as selling lower quality hot dogs at the same price. Have students think of ways consumers can protect themselves from unfair practices.
- The three-member companies established earlier can be the basis of a mini-stock exchange. Give students a sheet of paper that represents 100 shares of stock. Tell students they can buy stock in a company they are not a member of. Have students study the weekly reports that the companies create, and then buy stock in the company that looks most promising.

Have each company play a new round of "Hot Dog Stand." At the end of the week, the companies divide the profit they've made equally among the shareholders and write each shareholder's portion on the sheet of stock paper. The companies then prepare a new weekly report from this information.

The following week, students review the new reports and decide if they want to keep their stock in the same company or try another. Continue this process for one month. Have students total their stock at the end of the month and compare their profits with other class members. ■

Michael Cook teaches graduate computer courses to educators at Bank Street College of Education, New York City.

FROM THE CREATORS OF *ELECTRONIC LEARNING*, THE TEXT THAT DEFINES YOUR COMPUTER CURRICULUM



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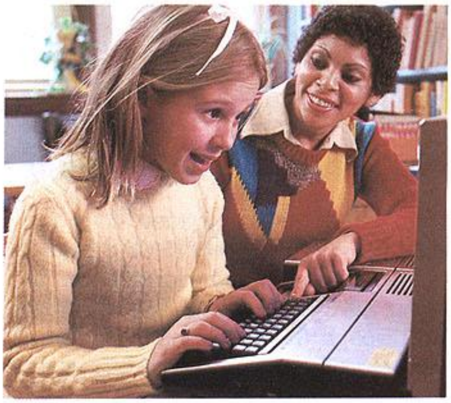

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Animation Station comes with a program called *Doodler*, which turns the computer into an easel for "finger painting." Forthcoming programs include *Para Graph*, a word processing program; *Animator*, which allows students to create moving pictures on the screen; and *Abacus*, an arithmetic drill program.

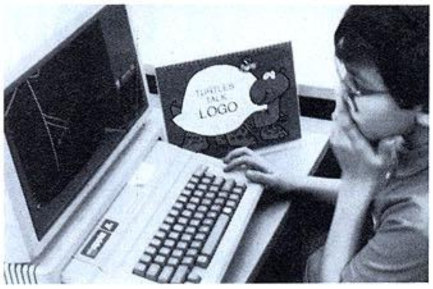
Animation Station is available for Apple, Atari, Commodore 64, and IBM PCjr computers.

Price: *$79.95 for Atari and Commodore versions; $114.95 for Apple and IBM versions*. Contact: *Suncom, Inc., 650E Anthony Tr., Northbrook, IL 60062; 312/291-9780.* □

(Circle 1 on Reader Service Card.)

Logo Lesson Books

Turtles Talk Logo, Books 1 and 2, are independent lesson books that teach fundamental Logo skills to Terrapin Logo users (Apple version). *Book 1* is for beginners in grades three to six; *Book 2* is for advanced Logo students in grades four to eight.



The books stand upright on a heavy cardboard stand. As students flip through the 10 lessons, they encounter progressively harder challenge activities.

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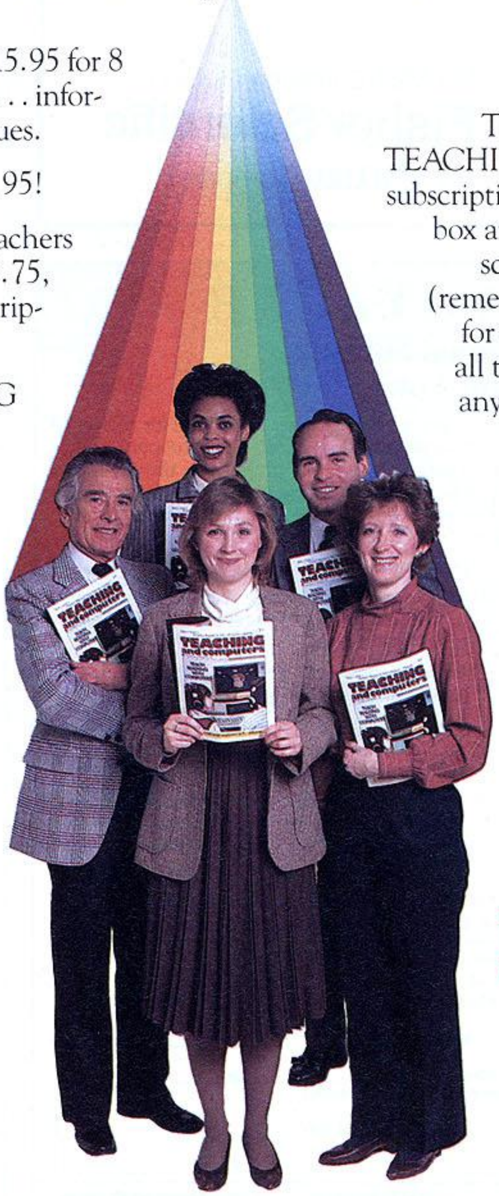

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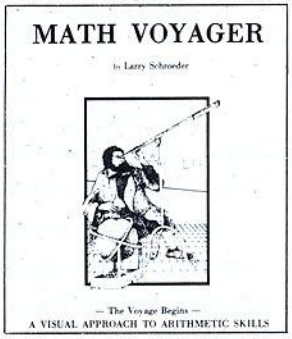
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READINESS REPRODUCIBLES

Two Computer Worksheets

The first worksheet this month teaches children to look for bugs (mistakes) in programs. The second sheet reviews computer vocabulary. Tear the worksheets out, duplicate them, and you'll have two lessons.

Lesson One: Tell students that some bugs don't crawl! In computer language, a *bug* is a mistake in a program. If a program has a bug in it, it will not work properly. Every time students write a program, they should check to be sure that:

1. Each program line starts with a line number. (The number should be a numerical figure such as 10, not a word such as TEN.)
2. Each program line has a statement word, such as PRINT, which tells the computer what to do. (The word must be spelled correctly.)
3. Quotation marks appear around all words the computer is to print.

Pass out the worksheet entitled "Find the Bugs." The sheet contains three program lines that need debugging. Tell students to write each of the three lines correctly. Answers:

```
10 PRINT "WHAT INSECT IS ALWAYS
WRONG?"; 20 PRINT "I DON'T KNOW,
WHAT?"; 30 PRINT "A COMPUTER BUG!"
```

At the bottom of the worksheet, have students put the three program lines into a program. Answer:

```
NEW
10 PRINT "WHAT INSECT IS ALWAYS
   WRONG?"
20 PRINT  "I  DON'T  KNOW, WHAT?"
30 PRINT "A COMPUTER BUG!"
END
```

Lesson Two: The second worksheet, "Guess the Word," provides an end-of-the-year review. It contains picture riddles of computer words used in this year's Readiness Reproducibles. Students are asked to write the computer word represented by each picture. Answers (from left to right, top to bottom): bug, key, tape, input, disk, END, RUN, keyboard, output. ☐

NAME ____________________________

Find the Bugs

Each program line below has at least one mistake. Write each of the lines correctly.

```
TEN  PRINT WHAT INSECT IS ALWAYS WRONG?
```

____

```
20  “I DON‘T KNOW, WHAT?“
```

____

```
30  PRUNT “A COMPUTER BUG!”
```

____

Put the three program lines above into a computer program.

NEW

10 ______________________________________

20 ______________________________________

30 ______________________________________

____

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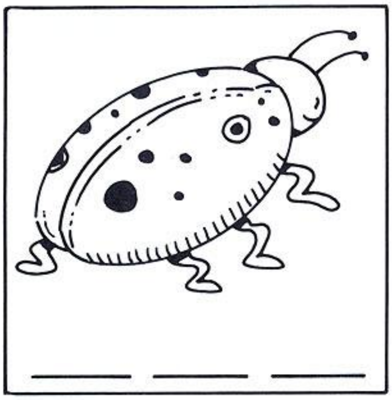
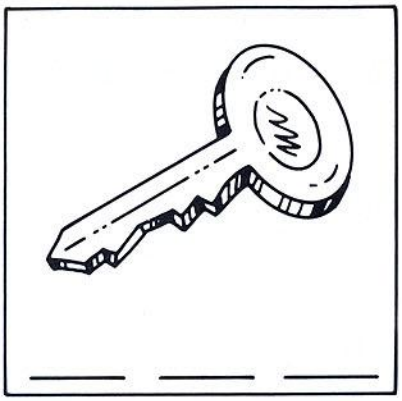
Theresa Anderko

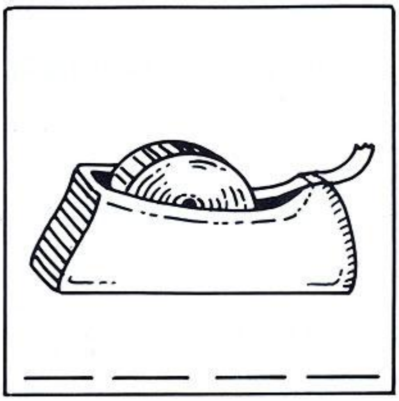
NAME ________________________________

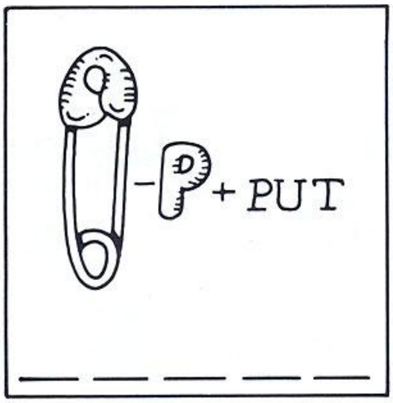
Guess the Word

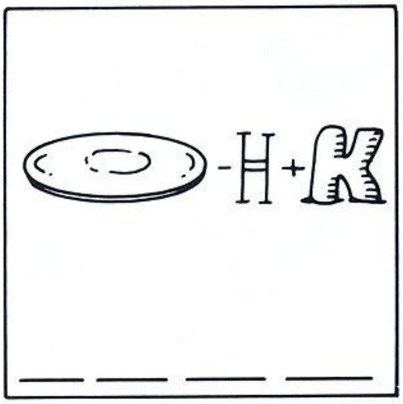
Write the computer word for
each picture riddle.

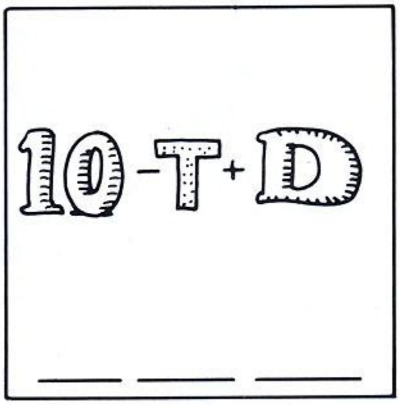


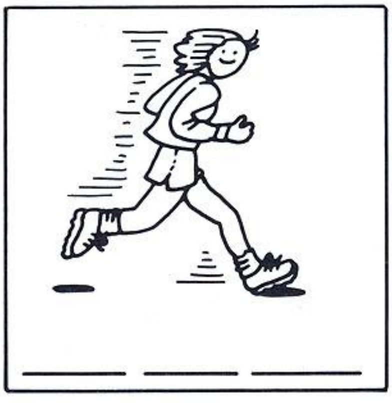


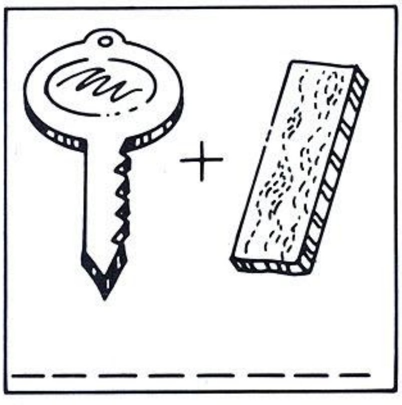


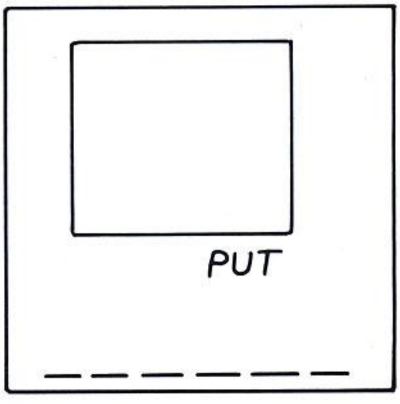












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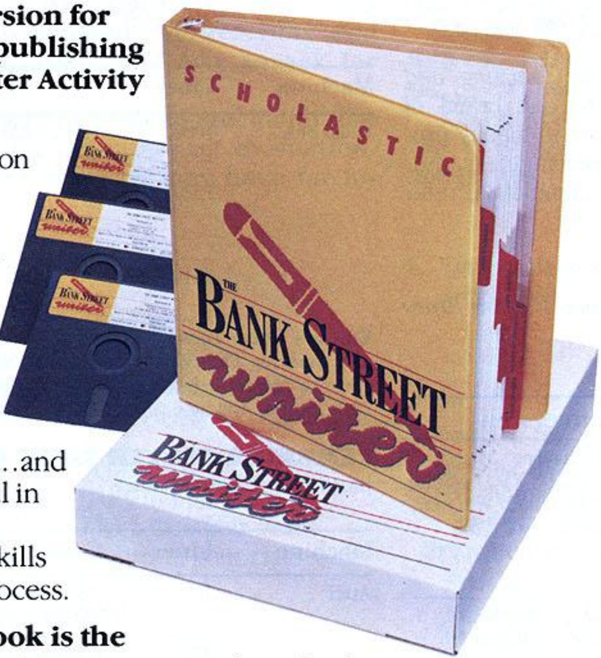

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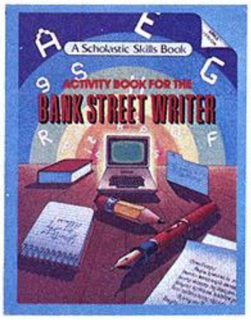

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How to Convert T&C Programs to Other Machines

COMMAND CONVERSION CHART

Some of the articles in this issue of *Teaching and Computers* contain programs specific to one brand of microcomputer. Use this conversion chart to modify programs for use on other brands of microcomputers. For more details on how to use the specific commands, refer to your user's manual.

PROGRAM OF THE MONTH: *Science Fiction Story Writer,* page 53 (Apple)

Machine	Lines	Conversion
Atari	5	Add this line: 5 DIM X$(1),N$(30), S$(30),P$(30),W$(100), Y$(100),F$(70),M$ (100),Q$(1),Z$(1),F1$ (2)
	1000, 1140, 1200, 1320, 1950, 2050, 5020	Change HOME to PRINT CHR$(125)
	1250, 2040	Change F=0 to F1$="S:"
	1280	Change F=1 to F1$="P:"
	1320	Change PR#F to OPEN #3,8,0,F1$
	1330 to 1920	Change PRINT to PRINT #3,
	1940	Change PR#0 to CLOSE #3
	1330, 1340, 1350, 1880 1910	Delete TAB(). Lines will read: 1330 PRINT "MY ADVENTURES ON" 1340 PRINT P$ 1350 PRINT : PRINT "BY ";N$ 1880 PRINT : PRINT M$ 1910 PRINT "THE END"
Commodore	1000, 1140, 1200, 1320 1950, 2050, 5020	Change HOME to PRINT CHR$(147)
	1250, 2040	Change F=0 to F=3
	1280	Change F=1 to F=4
	1320	Change PR#F to OPEN 3,F
	1330 to 1920	Change PRINT to PRINT#3,
	1940	Change PR#0 to CLOSE 3
Radio Shack	1000, 1140, 1200, 1320 1950, 2050, 5020	Change HOME to CLS
	1320	Change to 1320 IF X$ = "P" THEN CMD "Z","ON"
	1940	Change to CMD "Z","OFF"

Editor's Note: These conversions for *Science Fiction Story Writer* will only work for TRS-80 Models I and III with disk drives. If you have a cassette player, delete lines 1210 to 1280, 1320, 1940, and 1960 to 2070. Stories will be displayed on the screen only.

LEARNING CENTER TASK CARD #30, page 49 (Radio Shack)

Machine	Lines	Conversion
Atari	1	Add the following line: 1 DIM L$(1), S$(20), G$(20)
	40	Change CLS to PRINT CHR$(125)
Apple	40	Change CLS to HOME
Commodore	40	Change CLS to PRINT CHR$(147)
TI	40	Change CLS to CALL CLEAR
	20, 30, 50	Put commands on separate lines. Example: 20 PRINT "PLAYER . . . ITEM:" 25 INPUT L$

LEARNING CENTER TASK CARD #31, page 51 (Radio Shack)

Machine	Lines	Conversion
Atari	1	Add the following line: 1 DIM L$(1), N$(20), G$(20)
	30	Change CLS to PRINT CHR$(125)
Apple	30	Change CLS to HOME
Commodore	30	Change CLS to PRINT CHR$(147)
TI	30	Change CLS to CALL CLEAR
	20, 30, 40, 80, 90	Put commands on separate lines. *(See example, above.)*

LEARNING CENTER TASK CARD #32, page 51 (Radio Shack)

Machine	Lines	Conversion
Atari	2	Add the following line: 2 DIM Z$(1)

HOW ARE WE DOING?

A questionnaire on *Teaching and Computers.*

DEAR EDUCATOR:

Dozens of educators like you have contributed this year to the development of *Teaching and Computers* magazine. Now we'd like to ask for your help, too.

We'd like to know what you liked and didn't like about this year's issues. Your honest evaluation, as well as any suggestions you may have for future issues, will be invaluable to us as we plan for the 1984–85 school year.

Please fill out the questionnaire below. Then fold the form on the dotted lines and return it to us. No stamp is needed.

Thank you for helping us make our magazine the very best possible source for teaching with computers.

COMPUTERS AND YOU

1. What is your job title?
   ___ Teacher ___ Department Head
   ___ Principal ___ Other (please specify): ____________
2. If you checked "teacher" or "department head" above, what grade and/or curriculum area are you primarily associated with? ____________
3. How many years have you taught with computers?
   ___ Less than one year ___ Two to four years
   ___ One to two years ___ More than four years
4. Do you currently have a computer in your classroom? If so, what kind?
   ___ Yes, I have a computer in the classroom.
   Brand Name: ____________
   ___ No, I do not have a computer in the classroom.
5. Do you currently have access to computers in your school?
   ___ Yes; Brand Name(s): ____________
   ___ No

ABOUT *TEACHING AND COMPUTERS*

1. How many of the last four issues of *Teaching and Computers* have you looked at and/or read?
   None One Two Three All four
2. How many colleagues usually read or see your copy of *Teaching and Computers? (Circle one.)*
   No others 1 to 3 4 to 6 7 or more
3. Which of the following regular departments would you like us to continue next year? *(Check as many as apply.)*
   ___ Update (page 10)
   ___ Classroom Happenings (page 14)
   ___ *T&C*'s Poster (page 33)
   ___ Electronic Calendar (page 33)
   ___ Tools of the Trade (page 64)
   ___ Software Showcase (not in this issue)
4. Which of the following regular columns would you like us to continue next year? *(Check as many as apply.)*
   ___ Idea of the Month (page 8)
   ___ Question Corner (page 12)
   ___ Calendar Guide (page 45)
   ___ Learning Center (page 48)
   ___ Program of the Month (page 52)
   ___ Kid's Page (not in this issue)
   ___ Bookshelf (not in this issue)
   ___ Computing in the Content Areas (page 60)
   ___ Readiness Reproducibles (page 66)
   ___ Logo Notebook (not in this issue)
   ___ Conversion Chart (page 70)
5. On a scale from 1 to 5, please rank the three feature articles that appear in this issue.

Title	**Very Interesting Or Helpful**			**Not Interesting Or Helpful**	
Booting Up for Reading (page 16)	1	2	3	4	5
Logo Olympics (page 20)	1	2	3	4	5
A+ Software Supplement (page 29)	1	2	3	4	5

6. How would you rate your interest in seeing future issues of *Teaching and Computers? (Circle one.)*
   Much interest Some interest No interest
7. On a scale from 1 to 5, please rank your interest in reading articles on these topics next year:

Topic	**Of Least Interest To Me**			**Of Most Interest To Me**	
Graphic Designs	1	2	3	4	5
Funding Tips	1	2	3	4	5
Programming in BASIC	1	2	3	4	5
Programming in Logo	1	2	3	4	5
Introducing Computer Hardware	1	2	3	4	5
Word Processing	1	2	3	4	5
Teacher Training Programs	1	2	3	4	5
Computers and Record Keeping	1	2	3	4	5
How to Write Software	1	2	3	4	5
Computers in Art Class	1	2	3	4	5
Making Graphs on the Computer	1	2	3	4	5

8. Do you consider any of the following to be frequent problems in *Teaching and Computers? (Check as many as apply.)*
   ___ Overly technical language ___ Program bugs
   ___ Confusing illustrations ___ Inappropriate material
9. Which of the following best describes your overall evaluation of *Teaching and Computers?*
   ___ Very useful and informative
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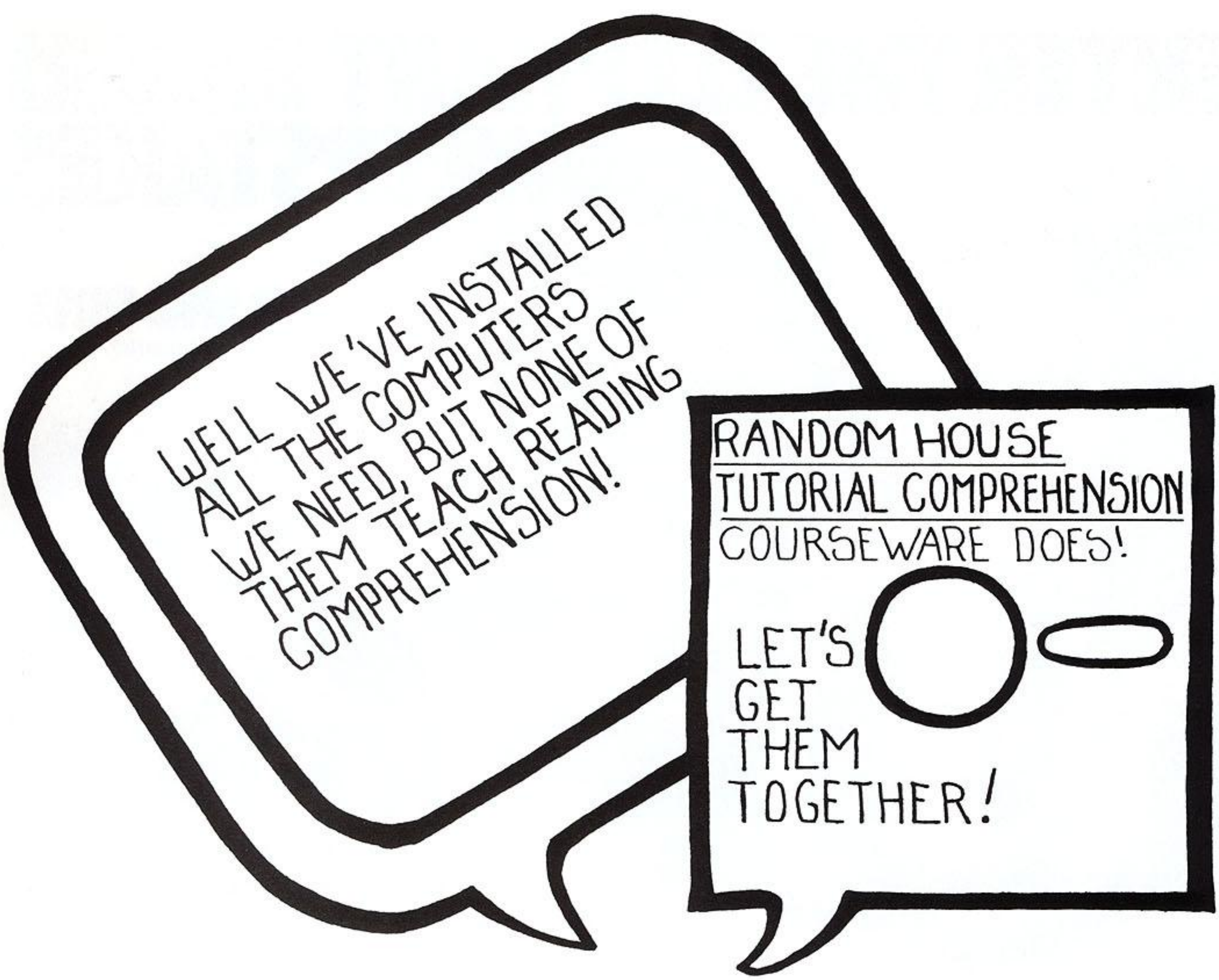
THANK YOU AGAIN FOR YOUR HELP!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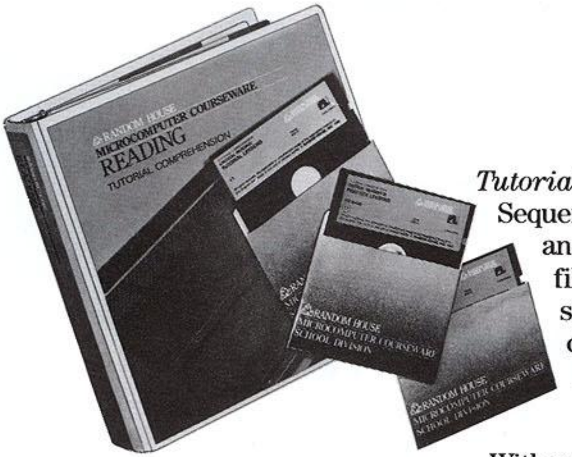
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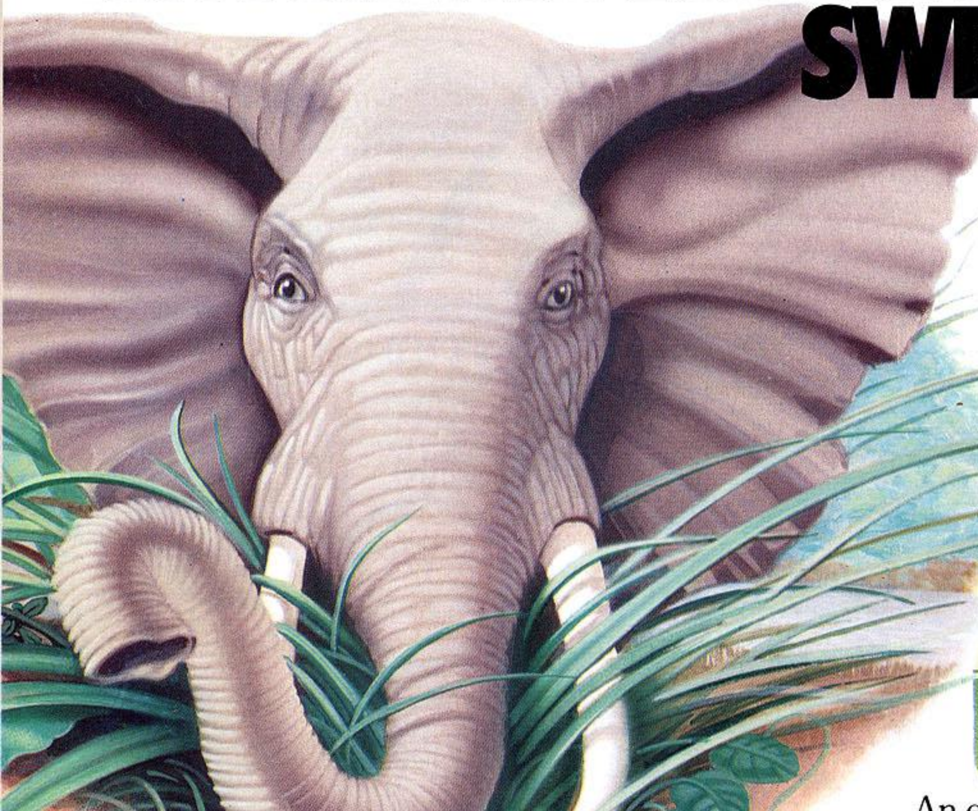

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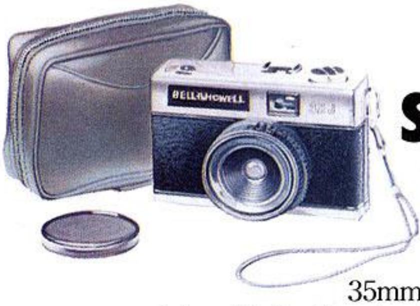

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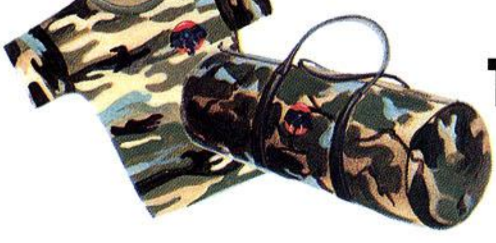

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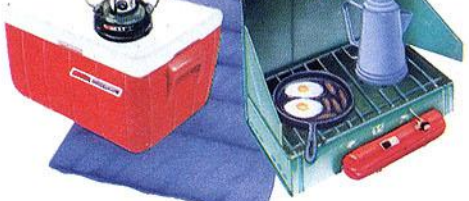

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